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Readmission Rates in a Drug Abuse Therapeutic Community: Evidence of Treatment Failure Or Gradual Success?

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READMISSION RATES IN A DRUG ABUSE THERAPEUTIC COMMUNITY: EVIDENCE OF TREATMENT FAILURE OR GRADUAL SUCCESS?

by

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VITA

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INTRODUCTION

The efficacy of drug treatment programs has undergone intensive investigation in the last decade. Research conducted at national and local levels has shown generally positive, although weak, effects for the major treatment modalities of the therapeutic community (TC) and methadone maintenance (MM) (Aron & Daily, 1974; Bale, Vanstone, Kuldau, Engelsing, Elashoff, & Zarcone, 1980; Dickinson, Polemis, Bermosk, & Weiner, 1973; Gold & Chatham, 1973; Illinois Economic and Fiscal Commission, 1975; Keil, Dickman & Rush, 1978; Kneisler & Heller, 1974; Lerner, Linder, & Klompski, 1972; MACRO, 1975; National Institute of Drug Abuse (NIDA), 1978a; Penk & Robinowitz, 1978; Quinones, Doyle, Sheffet, & Louria, 1979; Savage & Simpson, 1978; Sells & Simpson, 1979, 1980; Sells, Simpson, Joe, DeMaree, Savage, & Lloyd, 1976; Simpson, Savage, & Lloyd, 1979; Simpson, Savage, Lloyd, & Sells, 1978; Spiegel & Sells, 1974).

The major criteria utilized by the studies cited above have been post treatment measure of drug usage, employment status, criminal activity, and psychopathology. Far fewer studies, however, have examined the relationship between treatment outcome and readmission rate. The first authors to note this shortcoming were Simpson and McRae (1974). These

writers reviewed data from the Drug Abuse Reporting Program (DARP) and indicated that within two to four years after treatment 15% of these clients were readmitted to the same clinic. Simpson and McRae also indicated, however, that this percentage varied widely for each clinic and treatment modality. This issue lay dormant until the late 1970's, when a few authors (Richman, 1978; Sells, DeMaree, Simpson, & Joe, 1978; Simpson & Savage, 1980) reported that drug treatment recidivism literature is still a relatively unexplored topic.

The need to understand and explore the problem of multiple admissions of drug abusers can clearly be seen by examining prior demographic studies in this area. Early papers indicated that within one year of overcoming their addiction, some 80% to 93% of drug addicts resume their prior patterns of drug usage (Hunt, Barnett, & Branch, 1971; O'Donnell, 1965). Estimates of the number who return to treatment were lower by comparison, but still range from 35% to 61% within five years after initial treatment (Duvall, Locke, & Brill, 1963; Sells et al., 1976; Simpson & Savage, 1980; Simpson, Savage, & Joe, 1980). While these statistics were important reflections on the addiction phenomenon in general, they also pose interesting questions for the clinic which finds itself treating the same individuals on repeated occasions. Nationwide data analyses have revealed that

approximately 50% of all admissions to drug abuse programs were readmissions and that one-half of these had two or more prior treatment experiences (Curtis, Simpson, & Joe, 1976; NIDA, 1978b). These percentages have remained almost constant from 1969 through 1977 and were not expected to change in the future.

Perhaps the reason that more researchers have not chosen to investigate drug treatment readmission was that the process and meaning of recidivism has been poorly understood. That is, was the readmitted drug patient an indication of treatment failure or success? The majority of experts in this area have identified drug abuse as a chronic disorder. Recidivism can therefore be expected and may even be unavoidable for a majority of abusers (Lieberman & Brill, 1972; Ray, 1961). Some writers have gone even further and reported that multiple treatment exposures were actually an indication of treatment success (The Strategy Council on Drug Abuse, 1976; Vaillant, 1970). Opponents, however, have indicated that multiple admission patients tended to fare worse on during- and post-treatment criteria measures (Gordon, 1978; Siguel & Spillane, 1978). Still others have noted no significant differences between single and multiple readmission patients upon followup (McClellan & Druley, 1977; Simpson & Savage, 1980).

One possible explanation for these apparent contradictions may be that all of these studies lacked a refined definition of recidivism. The present study sought to rectify these shortcomings by distinguishing between rapid and nonrapid readmissions. By doing this, it was expected that greater distinctions could be made concerning the relative value of readmission.

A second possible explanation for the inconsistent results on recidivism may be the sources from which data were gathered. With only two exceptions (Gordon, 1978; McClellan & Druley, 1977), all the studies cited above used nationwide data samples which combined data from all treatment modalities. Reed (1978) and Craig (1980) have indicated that this practice of using natural data may obscure regional or individual program patterns. They suggested that researchers should instead conduct intensive investigations of single programs. The present research accepted this advice and limited itself to one drug treatment facility. A short-term TC was chosen for study, since a prior review of the literature (Fedirka, 1980) reported this modality has become increasingly popular in the last decade but that it has been the focus of little research.

The first part of this project compared rapid with nonrapid readmissions using various outcome criteria.

An attempt was also made to distinguish between the types of clients most disposed toward either type of readmission. A number of client characteristics were gathered for this purpose, including patient demography, psychosocial history, and drug use history. These same descriptors were used in the second phase of this research, which attempted to identify those addicts who were the least or most likely to enter the TC on more than one occasion. The results of these analyses were discussed as they related to both drug abuse theory and individual program evaluations.

REVIEW OF RELATED LITERATURE

The Current Status of Program Evaluation in Drug Abuse Research

Recent national reports have indicated that a major drug abuse problem continues to exist in this country. The Commission on Mental Health (1977) has estimated that 500,000 Americans are currently heroin dependent and that millions more have experimented with this drug. The Office of Drug Abuse Policy (1978) has supported these figures and has further estimated the social costs of all drug abuse to be in excess of 10.3 billion dollars annually. While this later report found certain groups overrepresented in the drug abusing population, it concluded that the high cost of drug abuse affects all citizens.

The Illinois Economical and Fiscal Commission (1975) has estimated that there are 40,000 heroin addicts in that state and that only 5,000 are in treatment at any given time. This Commission reported that very little evaluation of treatment programs had been conducted at that time and that information about treatment effectiveness was needed. The U. S. Department of Health, Education and Welfare has echoed this concern and has published guidelines and suggestions for conducting this research (Guess & Tuchfeld, 1977a; Johnston, Nurco, & Robbins, 1977).

These pressures for accountability have generated a deluge of evaluation studies in the last decade which have investigated the feasibility of various drug abuse treatments. Unfortunately, however, weaknesses in design and methodology have remained pervasive and limit the generalizability of these results. Critics of drug program evaluations have focused on a number of flaws. Among these have been: the lack of emphasis placed on program (treatment) improvement (Brown, 1974; Newman, 1978); the lack of attention paid to locale and time (Newman, 1978; Sells, DeMaree, Simpson, Joe, & Gorsuch, 1977); the inadequate statistical treatment of skewed data (DeMaree, 1974); the lack of connection between research results and drug abuse theory (Reed, 1978); the lack of multiple outcome measurements (Lavenhar, 1973; Sells et al., 1977); and the combining of data obtained from facilities with different orientations (Craig, 1980; Reed, 1978). More crucial than these, however, have been the criticisms regarding the measurement and description of patient, treatment, and criteria variables.

Dole and Warner (1967) were among the first to criticize early drug program evaluations. In the main, their criticisms focused on the deficits often found in client and program description. They indicated that reports were chaotic and that standardized tabulation of data was badly needed. Laskowitz and Osmos (1969) reiterated these concerns and

suggested that the first step was to divide research subjects on dimensions that were clinically meaningful. In this way, the data would be scientifically precise and still retain clinical usefulness.

These caveats and suggestions have not always been heeded, however, as these very same criticisms have recently been echoed by McCaslin and Ershoff (1978). These authors attempted to empirically evaluate the drug program evaluations in print but found they were unable to do so because many studies neglected to adequately specify their treatment populations, treatment methods, or success criteria. McCaslin and Ershoff found this inadequacy of description to be widespread in drug abuse research and felt this lack was a major stumbling block toward the integration of knowledge about drug treatment and rehabilitation. Other authors have come to similar conclusions (Bale, 1979a; Lavenhar, 1973; Walizer, 1975) and suggested that some form of standardized scientific criteria were needed for the accurate description of drug abuse behavior and treatment. The adoption of acceptable standardized measurement would facilitate research comparisons and help to unravel some of the data already reported.

The precise description and measurement of treatment, patient, and success criteria has been a most crucial issue in drug program evaluation because of the diversity exhibited

by these factors. Guess and Tuchfeld (1977b) have stated that even with rigourous description, the differences displayed by patients and treatment facilities have continued to make many comparisons difficult. These authors warned that even minor variations in treatment or clientele may have profound effects on outcome research. Further complicating evaluation efforts have been findings which indicated the high degree of interrelatedness of client and treatment types and client demographic and psychosocial variables. The importance of exploring all relevant data and their relationships can best be illustrated by examining one well-conducted study reported by Joe, Person, Sells, and Retka (1974). These writers have focused on the efficacy of methadone maintenance and the therapeutic community (TC) treatments as one part of a nationwide project which examined almost 12,000 admissions to the DARP between 1969 to 1971 (Sells, 1974). Preliminary summaries had already indicated that Black patients tended to be older at admission than Whites, had different drug abuse histories, used heroin more frequently, and had a greater tendency to enter methadone maintenance. The non-independence of these factors was strongly stressed and tempered all later conclusions. Joe et al.'s findings indicated that illegal opiate use decreased for the first year clients who were in methadone maintenance and that these results were especially prominent

for older clients and Mexican-Americans. Blacks, however, showed the greatest variability on this measure. The same pattern of results was found for non-opiate use over the first year in methadone maintenance and for a composite outcome indicator which included measures of drug usage, employment, and criminal activity. Results for the long-term TC patients were even more promising as these patients had the lowest rates of drug usage and arrests. Unfortunately, however, the TCs also had the lowest rates of retention for the first year in treatment (from 16% to 29%). The authors concluded that both modalities held some promise as a rehabilitative treatment and suggested that each may have a particular clientele that was attracted to it and/or worked well within it. They also concluded that more research was needed in the area of reasons for termination.

Studies as well conceived and conducted as Joe et al.'s have been relatively rare, however, despite the availability of excellent reference works (Guess & Tuchfeld, 1977a; Sells, 1974; Sells et al., 1977). Vaillant (1974) has examined this problem at length and suggested three possible sources are responsible for this inconsistency. These were: 1) superstition on the part of the investigator; 2) poor outcome criteria; and 3) haste in reporting results. While development of weak criteria was a technical criticism, superstition and haste were more directly attributed to characteristics or

biases of the investigator.

Vaillant believed that some researchers may have been out to "prove" their own superstition, namely, that their method of treatment was superior to all others. These researchers then constructed their investigations in a manner that would emphasize data favorable to their position. Vaillant alternatively hypothesized that the exclusion of important variables in a study was more likely to have stemmed from an investigator's eagerness to report results at the expense of thoroughness. Vaillant felt that this sacrifice of thoroughness for speed was the more likely of the two possibilities and that it greatly compromised the quality of the research in print.

Klein (1977) has also discussed the dearth of quality in drug treatment evaluation and suggested that this shortcoming has often been due to the lack of training and interest in research at many treatment facilities. Klein indicated that most clinics were not prepared for the government's emphasis on treatment accountability, did not have evaluation procedures built into the program or budget, and lacked the trained individuals necessary to conduct quality research. In addition to this, most drug facilities have traditionally emphasized clinical treatment and have been suspicious about the utility of research in general. Klein

felt that these problems together with the difficulties faced in obtaining reliable data from the often transient and suspicious drug abusing population have been primarily responsible for the lack of quality often found in drug treatment research.

In summary, criticism of drug treatment evaluation has focused on a number of features. The most prominent criticisms, however, have been those associated with the selection and description of client and outcome variables. Siguel and Spillane (1977) have indicated that future researchers must be aware of these problems and suggested that they can be avoided by the inclusion of patient and outcome data from the Client–Oriented Data Acquisition Process (CODAP) admission and discharge forms. The advantages of utilizing CODAP data have included the variety of patient information reported, its wide utilization by treatment facilities in this country, and the standardized manner in which data were recorded and reported. Siguel and Spillane also felt that researchers who used CODAP data would be less subject to the biases discussed by Vaillant (1974) and Klein (1977). These arguments have appeared quite salient in light of the present status of drug program evaluation. We can only wait to see if they will be heeded in future research.

The Therapeutic Community (TC)

The first residential treatment center for drug-dependent individuals in the U. S. was established at Lexington, Kentucky in 1934. One year later a second one was opened in Fort Worth, Texas. These federal facilities had highly restrictive environments and, in fact, drew 30% of their treatment cases from federal prisons during the period between 1935 and 1966 (Ball, Bates, & O'Donnell, 1966). These institutions were the only drug treatment centers in this country until the founding of Synanon by Charles Dederich in the late 1950's (Glasser, 1974). Synanon was the original TC for drug abusers and was based on principles similar to those of Alcoholics Anonymous. The most prominent similarity was that the TC was a self-help group in which members were expected to be responsible for their own behavior and to assist other members to remain drug free. These ends were to be accomplished mainly through the repeated use of peer group pressure and direct confrontation with others (Jones, 1979). Unlike Alcoholics Anonymous, however, was the premise that overcoming one's addictive lifestyle was a full time endeavor which necessitated communal living with other addicts. The TC itself was organized as an independent society with each resident member assigned duties to assure its maintenance and continuance. Daily activities were highly regimented with numerous rules, and specific times were assigned for

chores and therapeutic interventions. The environment was highly restrictive and the noncompliance with any rule or regulation led to swift and harsh punishment or censure. Many TC proponents, like Zarcone (1980), have supported its restrictive nature and stated that the TC's success was, in fact, directly related to its emphasis on structured living, adherence to rules, and the modeling of prosocial behaviors by senior members.

While all TCs have included the features described above, a number of differences have existed among programs. Two such differences have been the setting of the TC and the accompanying TC staff. Originally, the TC was an independent facility with no institutional affiliations and was staffed entirely by paraprofessional ex-addicts. Within the last decade, however, TCs have been founded in conjunction with private, state, and federal hospitals and have added psychologists, physicians, social workers, and nurses to the treatment team (Jones, 1979; Zarcone, 1975). A second major variation in the TC model has been designated length of the program. At one extreme, the total TC (such as Synanon) has contended that no community resident should ever be returned to the society at large. Most TCs, however, have prescribed times for discharge from the TC, which may range from one month to two years. Nationwide studies of all drug treatment programs hae suggested that the TC can be

classified into one of two categories (Cole & James, 1975; Spiegel & Sells, 1974; Watson, Simpson, & Spiegel, 1974). These were: the traditional or long-term TC which requires a minimum of six months to complete; and the medically oriented or short-term TC whose treatment lasts from two to six months. Watson et al. (1974) found that the modal completion time was about twelve months for the traditional TC and two months for the short-term TC.

Advocates of the TC model have indicated that the TC has been successful in the rehabilitation of drug abusers because it interrupts their destructive lifestyle and provides prosocial models of behavior. Ray (1961) has stated that anyone could withdraw from illicit drugs but that for permanent abstention, addicts needed to align themselves with society, develop more socialized roles, and alter their self-image. Hendler and Stephens (1977) have similarly written that the progression from drug experimentation to drug addiction involved an increased commitment to a drug subculture and reference group. Addicts that make this commitment increased the physical, psychological, and social reinforcements available to them in the subcultures and were unlikely to give up these reinforcements spontaneously. Research has strongly supported these beliefs and indicated that drug abusers as a group have displayed high incidences of asocial behavior, such as criminal activity (DeFleur, Ball, & Snarr,

1969; Mott, 1975; Nurco & DuPont, 1977; Robins & Murphy, 1967; Voss & Stephens, 1973), and lack of legal employment (Ball, O'Donnell, & Cottrell, 1970; Bates, 1968; DeFleur et al., 1969; Wang, Hieb, & Wildt, 1976). The TC has attempted to alter these patterns by placing a number of social constraints on the resident and forcing the addict to behave in a responsible manner within and outside of the community. These pressures to conform are regulated by the rules of the TC and enforced by other residents through confrontation techniques and peer pressure. In one sense, the entire community has served as a behavior modification program which immediately reinforces prosocial behavior and extinguishes or suppresses negative behavior. In addition to these behavioral measures, psychotherapeutic procedures are utilized to assist self-insight and to teach the resident effective coping behaviors.

Previous Criticisms and Evaluations of the TC Approach

A few authors have contended that it may be impossible to force a change in an addict's lifestyle but that addicts themselves may stop abusing drugs by their late 30's or 40's. The foremost proponent of this theory was Winick (1962, 1964), who found that one-fourth of all addicts cease drug use by age 26 and three-fourths have become abstainers by age 36. Winick termed this phenomenon "maturing out" of drug addiction

and proposed that drug abuse was a way of dealing with unresolved dependency needs which were eventually mastered by age 40. Support for this position was generated by Snow (1973) who reported that at a four-year followup, drug abusers over 38 years old were significantly more likely to be abstainers than addicts who were under 28 years old. One contamination found in the study, however, was the fact that the death rates for individuals in this sample was highest for addicts between the ages of 28 to 37. It may very well be, then, that for addicts to reach the age of 40, they must abstain from drugs and the drug lifestyle. Further complicating this issue were the findings of Ogborne and Stimson (1975) who followed a sample of British addicts for three-and-one-half years. These authors indicated that, unlike their U. S. counterparts, the oldest subjects were significantly more likely to still be using drugs than their younger cohorts. These results clearly contradicted the reports of Winick and Snow and suggested that abstaining from drugs may entail more than just reaching the age of 40.

Even if the concept of "maturing out" was appropriate, it is unlikely that society and clinicians would be content to solve the drug problem by waiting for addicts to age. Intervention has therefore been seen as desirable, but the form that intervention should take has often been debated. Coglin and Zimmerman (1975) reviewed the research conducted up to

1972 at TC and MM clinics and concluded that neither treatment modality has been demonstrated to be effective. These authors had rather stringent success criteria and limited treatment successes to those individuals who permanently abstained from all illegal substances. More recent research, however, has measured outcome on a number of dimensions which have included indices of criminality, employment, socialization, psychopathology, and drug usage (Sells et al., 1976). This later strategy has developed as more experts in the area have come to understand that helping an addict to achieve a drug-free status is a lengthy process and that intermediate measures of success are therefore important and valuable to measure (Lavenhar, 1973; Lieberman & Brill, 1972; McClellan & Druley, 1977).

A great deal of controversy about the effectiveness of the TC continues to exist. Bejerot (1978) has recently written that the TC may not be an effective treatment for sociopaths, while Hart (1972) has argued that a TC which does not return residents to society's mainstream has not rehabilitated anyone and merely serves as an extension of the drug subculture. Other authors have ambivalent reactions toward the TC and have reserved judgment about it and the techniques used until further research is conducted (Coulson, Went, Ouellette, Russel, & Kozinski, 1975). One approach used in evaluating the TC has been a cost-benefit

analysis. Lerner et al., (1972) utilized this perspective in assessing a TC located in the Haight Ashbury community of San Francisco. Their results indicated that only 6% of the treated heroin addicts remained drug-free after treatment and that another 16% used heroin occasionally without addiction. Lerner et al. further pointed out that the treatment provided was quite costly, but concluded that it was worth the expense since the resultant reduction in crime saved the Haight Ashbury community over $39 million a year. Other authors have been more conservative about the cost benefits of the TC but were still optimistic (Dickinson et al., 1973; Iverson & Wenger, 1978; Zimmerman, 1974). Even among this group, however, Iverson and Wenger (1978) and Zimmerman (1974) have pointed out that the higher number of dropouts greatly reduced the effectiveness of the program and suggested that a continued search for more efficient programs was needed.

Another conservative but positive appraisal of the TC has been given by Sugarman (1974), who reviewed TC outcome studies. In his conclusions, Sugarman stated that, despite the lack of controls in many articles, the TC modality did appear to produce positive changes in individuals both during and after treatment. In more controlled studies, where TC clients were compared to individuals who received prison or general hospital treatment, the TC clients showed greater

changes toward positive self-concept and decreased pathology. Sugarman added that these positive changes appeared most pronounced in clients who had the longest TC stays. Recent publications have supported Sugarman's analysis and indicated that the TC was superior to methadone maintenance, outpatient treatment, prison, and halfway houses in reducing post treatment drug usage (Keil et al., 1978; Savage & Simpson, 1978). Still other projects have found that long lengths of stay in a TC significantly reduced psychopathology (Skolnick & Zuckerman, 1979; Zuckerman, Sola, Masterson, & Angelone, 1975), criminal activity (DeLeon, Andrews, Wexler, Jaffe, & Rosenthal, 1979; Maddox & Desmond, 1979), post discharge arrests (Systems Science Inc., 1973), and convictions (Aron & Daily, 1974). While the results of such research have been far from conclusive, they have provided some optimism that the process of addiction could be interrupted by treatment in a TC and that long-lasting rehabilitation was possible for some addicts.

Further Support for the TC Modality: Length of Stay (LOS) Research

A number of factors have been associated with the success rates of the TC but none has appeared in the literature more often than length of stay (LOS). In a comprehensive study of addicts nationwide, Simpson et al. (1978) conducted first-year followups on former TC patients. They

found that LOS was the best of all predictors they utilized and was significantly correlated with 8 of 10 outcome measures. Results indicated that the number of days a person spent in treatment was positively correlated to later employment and a composite outcome score, and was negatively correlated to opiod and nonopiod drug usage, measures of criminality, and time spent in jail post treatment. Simpson et al. concluded that LOS in the TC may have positive rehabilitative effects on the addict and should be measured in outcome research.

Numerous other sources have supported and extended the results obtained by Simpson et al. Research in the area of vocational adjustment has indicated that increased LOS had led to a higher number of successful job placements (Alksne & Robinson, 1976); higher rates of full- and part-time employment (Collier & Hijazi, 1974; Cutter, Samaraneera, Price, Haskell, & Schaffer, 1977; Gold & Chatham, 1973; Joe, 1974a; McClellan & Druley, 1977; Pin, Martin, & Walsh, 1976; Raymond, Forrest, & Kleber, 1975; Sheffet et al., 1980); longer periods of employment (Katz et al., 1975); and greater likelihood of school enrollment and attendance (Collier & Hijazi, 1974; Zarcone, 1975). Studies which examined post treatment drug usage have indicated that lengthier treatment stays resulted in higher rates of drug abstinence

(Gold & Chatham, 1973; Zahn & Ball, 1972) and significant decreases in opiod and non-opiod drug usage (Collier & Hijazi, 1974; Cutter et al., 1977; Illinois Economic and Fiscal Commission, 1975; Joe, 1974b; Katz et al., 1975; NIDA, 1978a; Pin et al., 1976; Raymond et al., 1975; Wilson, 1978; Zarcone, 1975).

A possible flaw in many of these TC studies has been their lack of control for the confounding effects of motivation. Critics of these projects may state that individuals who stayed in treatment longest were probably the most motivated to begin with and thought we should therefore expect them to remain in treatment longer and to continue to do well after discharge. Other research, however, has shown that long-term residence in a TC has sometimes produced pronounced personality and motivational changes. Reports on this topic show that increased LOS has been correlated with: positive staff ratings (Copeman & Shaw, 1976; DeLeon et al., 1971), improved self images and self insight (Steinfeld, Rice, & Malbi, 1974), and decreased psychopathology on personality tests (DeLeon, Skodol, & Rosenthal, 1978; Skolnick & Zuckerman, 1979; Zuckerman et al, 1975). Perhaps the most thorough study of this nature was conducted by Sacks and Levy (1979) who examined MMPI profiles as well as staff and other client ratings of psychopathology. They found that all three measures were highly reliable, correlated well with

each other, and showed decreasing pathology when each was correlated to LOS. Taken as a group, these studies have suggested that continued treatment in a TC may generate positive personality changes in an individual addict. While this has not ruled out the hypothesis that an addict who was motivated to do well after treatment was also motivated to remain in treatment longer, it did suggest that positive motivational changes did occur for some addicts who received treatment in a TC.

One outcome criterion which has seldom been related to LOS has been patient readmission. To date, only three studies have specifically compared recidivism rates to the LOS of an earlier treatment (Ball, Thompson, & Allen, 1970b; Sansone, 1980; Simpson & McRae, 1974). The original study, by Ball et al. (1970b) examined over 77,000 admissions to Lexington Hospital during the years of 1935 through 1966. They found that LOS had a very weak relationship to readmissions, which depended upon the addict's age at admission. Briefly, their results indicated that an extended LOS produced fewer readmissions for those addicts who were under 21 or over 30 years old. The second study of this kind was reported by Simpson and McRae (1974) who examined DARP patterns from 1969 to 1971. These authors combined data from five treatment modalities [methadone maintenance (MM), TC, outpatient detoxification, drug-free and intake only], and found no significant

correlation between LOS and readmission. The only exception to this was the finding that clients who had 0- or 1-day admission were the most likely to have multiple readmissions. The most recent study of this topic (Sansone, 1980) utilized subjects from a long-term TC. In contrast to the previous study, he found that addicts with the greatest LOSs were the most likely to be readmitted. Clearly, the results from these projects were contradictory and in need of further research. Results of this nature have not been limited to LOS studies, however, since drug readmissions have been poorly understood and produced conflicting results in many areas of research. This paper shall now focus more closely on this problem.

The Readmitted Drug Patient: Evidence of Treatment Success or Failure?

The observation that drug abusers were subject to frequent relapses has been well accepted by clinicians and nonprofessionals. Empirical studies of this phenomenon have shown strong support for this view. In a review of the early literature, O'Donnell (1965) concluded that drug addiction was a chronic disorder and that a relapse rate as high as 93% could be expected within one year of treatment. Duvall et al. (1963) were even more pessimistic since they reported that 97% of the addicts they studied became readdicted within

five years after their hospitalization. Hunt et al. (1971) reviewed addiction literature from the areas of alcoholism, drug abuse, and cigarette smoking. These authors found a great deal of similarity among these areas and theorized that relapse was stable and consistent for each. Moreover, they found that by gathering data from each area, they could produce readdiction curves which were highly comparable. Their major conclusion was that, regardless of the addiction or type of treatment received, approximately 80% of all addicts will become readdicted within one year after treatment. While Hunt's paper has been criticized on theoretical grounds (Litman, Eiser, & Taylor, 1979), it nonetheless has reconfirmed the notion that addicts were highly subject to relapse.

Not all relapsed addicts have returned for further treatment. Some, in fact, may be able to reabstain from drugs on their own (Duvall et al., 1963). Still others may resign themselves to an addiction lifestyle or die in the process. The majority, however, do return for additional treatment. Two early studies conducted at Lexington Hospital (Ball et al., 1970b; Duval et al., 1963) reported that two to five years after treatment, 41% of the ex-patients were readmitted. Later analyses of 1969 to 1971 DARP data (Joe, 1974c; Simpson & McRae, 1974) indicated two to four years after entry, 15% of all drug abusers could be expected

to reenter the same institution. Both reports also indicated that this percentage was the average of all DARP facilities and that individual clinics and treatment modalities displayed a high variability. Joe felt that his percentage of readmissions was far lower than those of the Lexington studies because the later-day addicts had a wide variety of programs to choose from if they desired a second treatment. The Lexington patients, however, had no such choices.

Contemporary research, which has measured readmissions to any treatment facility, produced findings similar to or higher than those obtained at Lexington. Simpson (Simpson & Savage, 1980; Simpson et al., 1980) conducted such analyses with 1969 to 1972 DARP data. They found a 35% return rate one year after treatment, a 45% return rate after two years, and a 51% return rate three years after treatment. A lengthier followup of these (Sells et al., 1976) revealed that this figure went up to 61% five years after treatment.

On the surface, the figures above have seemed excessive and may lead to the conclusion that drug abuse rehabilitation efforts have failed. Many experts have disagreed with this conclusion, however, and proposed that recidivism should be expected and may even be needed for treatment success. Ray (1961) advocated this position and indicated that nearly all addicts refrain from drug usage at some time in their life

but that most relapse again. Permanently kicking the habit required that an addict change his self image from that of drug user and align himself with the greater society. Ray felt that the seeds of a new self image were sown with each new treatment and that sooner or later one seed would take root and grow. Other authors have agreed with this contention and indicated that helping a drug abuser to develop a drug-free life was a lengthy process which required repeated treatment (Lieberman & Brill, 1972; The Strategy Council on Drug Abuse, 1976; Vaillant, 1970). Hendler and Stephens (1977) have noted that the drugs and lifestyle associated with drug abuse have many reinforcing properties for the drug addict. The goal of the TC has been to help the addict make the transition from seeking drug-associated rewards to seeking the reinforcements available in straight society. We know from the laws of reinforcement that this has been difficult, however, since these behaviors were overlearned and resistant to extinction. Repeated learning of the new reinforcements may therefore be required.

Empirical evidence to support this position has been very sparse and somewhat equivocal, however. A review by the Strategy Council on Drug Abuse (1976) has suggested that repeated treatment was beneficial and has a cumulative effect for the patient. Sells et al. (1976) have agreed with this position but indicated that readmissions were helpful only

if the client remained in treatment for lengthier periods of time. Conflicting results have been produced by two other projects, however, which also sought to measure the relative merits of readmission. Gordon (1978), for instance, conducted a four-year followup of methadone maintenance patients and found that those who were subsequently hospitalized tended to have the poorest outcome. Siguel and Spillane (1978) examined national 1975 - 1977 CODAP data and found that clients who had even one prior treatment were statistically less likely to complete their present treatment. This study did not, however, attempt to find out if there was any improvement on outcome criteria for each subsequent admission.

A more neutral appraisal of recidivism has begun to surface in the last five years. Experimental evaluations of readmitted patients have shown them to be no different from single admission patients on demographic variables (Joe, 1974c; Simpson & McRae, 1974) or later outcome measures (McClellan & Druley, 1977). Using DARP data, Simpson and Savage (1980) found that both single and multiple admission clients appeared to benefit from treatment but that single admission clients may have achieved slightly better outcomes. These authors noted, however, that the single admission addicts were more likely to be less-than-daily opiod users and that this group had the best outcomes regardless of their number of admissions. Simpson and Savage also found

that readmitted clients who re-entered within one year of first discharge were more improved than those with longer intertreatment periods. On the basis of these findings, the authors came to the following conclusion: 1) single admission patients appeared to have a slight advantage at later followup; 2) repeated admissions may have had some cumulative effect, especially if there was a period of less then one year between treatments; and 3) drug treatment recidivism was a complicated process and in need of further research.

From the review above, it was seen that exceedingly few studies have been conducted on the relative value of recidivism and that the few which do exist have produced highly conflicting results. One possible reason for this was that with only two exceptions (Gordon, 1978; McClellan & Druley, 1977), all of the studies above averaged national statistics and made no distinction among the type of treatment received. Reed (1978) has criticized this approach since it may have obscured regional and individual program patterns. He argued that while nationwide programs have the appearance of being all inclusive, they fail to account for the specific interactions of specific client types with specific treatment facilities. It was possible that the heterogeneity of these massive samples may have cancelled out patterns which could be clearly discerned at

the modality or single facility level. Craig (1980) has agreed with these observations and argued that enough such "macro studies" have been conducted and that research should now intensively examine individual treatment programs. The current paper adopted this approach and limited itself to one drug treatment facility. A short-term TC was chosen for study since a prior review of the literature (Fedirka, 1980) reported that this modality has become increasingly popular in the last decade but that it has been the focus of little research.

While the variety of data sources may be used to explain the inconsistencies found in the data above, another possible confound also exists. This was the fact that all of these studies lacked sophisticated measurement of readmission and merely reported it as something which did or did not occur. Evidence outside the area of drug abuse has indicated that this practice may be limiting and that requalifying readmission as rapid or nonrapid has provided more insight into the recidivism problem (De Francisco, Anderson, Pantano, & Kline, 1980). De Francisco et al. (1980) examined readmissions to a Veterans Administration (VA) Hospital and found that those patients with brief LOSs ($\bar{x}$ = 9 days) were more likely to have experienced rapid readmission. Patients with longer stays ($\bar{x}$ = 29 days) were able to tolerate the outside environment for longer periods of time and

required fewer hospitalizations. De Francisco concluded that there was a qualitative difference between rapid and nonrapid admissions and that the rapid ones were clearly more negative. The present paper felt that De Francisco's innovative approach to recidivism was a useful one and could be of help for drug treatment evaluation. It was therefore adopted by the present study as an attempt to clarify the relative utility of treatment readmission.

Factors Associated with Recidivism: A Review of Previous Reports

The topic of recidivism has recently become popular in the areas of drug abuse research and program evaluation. Curtis et al. (1976) have reported that 50% of all 1969-1973 DARP admissions were readmissions and that half of these individuals had two or more prior treatments. The identical percentages were also reported by the NIDA (1978b), which analyzed CODAP data gathered two to eight years later. Treatment recidivism thus appeared to be a stable phenomenon and one which can be expected to continue for a least the near future.

Experts in drug abuse rehabilitation have indicated that readmission to treatment was an important topic which has frequently been ignored in the past. Sells (Sells, DeMaree, Simpson, & Joe, 1978) and Barbarin (1979) have

written that recidivism should be measured along with other treatment outcomes. They further suggested that readmission should be related to treatment center background and client behavior before and after every discharge. Richman (1978) has agreed with this perspective but also indicated that recidivism data should be investigated because it could provide information about an individual treatment program's effectiveness. Thus, Richman felt that readmission data needed to be analyzed from both an outcome and program evaluation perspective.

Actual research concerning the factors associated with drug abuse recidivism has been very sparse. Information that could be useful to the individual clinic was even more scarce, since the majority of these projects were analyses of nationwide data. Still another limitation of these reports was their lack of description regarding the client characteristics and program features which might affect recidivism. Earlier in this paper, it was reported that this lack of client and program description was the single most cited shortcoming of all drug abuse program evaluations. Despite these methodological problems, a review of these studies has been presented below. For added clarity, this review has been divided into the program and patient features most often investigated in recidivism studies.

Program Features

Modality. The greatest concordance of recidivism findings has been reported in this area. Six studies have analyzed DARP data and concluded that the TC and outpatient drug-free patients experienced fewer readmissions than patients from the methadone maintenance or inpatient detoxification modalities (Savage & Simpson, 1978; Simpson et al., 1978; Simpson et al., 1979; Simpson & Joe, 1980; Simpson & Savage, 1980; Simpson, Savage, & Joe, 1980). These studies estimated that 51% of patients returned to treatment within three years of discharge but that only 46% of the TC patients had multiple admissions.

LOS. Ball et al. (1970b) examined data from Lexington Hospital and found that the LOS of a previous treatment was not related to later readmissions unless the patient was under 21 or over 30 years of age. A high LOS for either type of patient decreased their chances of being readmitted. In a study of a long-term TC, Sansone (1980) found the opposite result, however, since high LOS clients here were more likely to be readmitted later. A third study by Simpson and McRae (1974) found no relationship between LOS and recidivism for DARP patients unless the LOS was less than two days. These clients had a greater tendency to experience readmissions. Lengthier followup of these same patients

(Simpson et al., 1978), however, indicated that, with data maturity, an inverse relationship between LOS and number of later admissions could be found.

Type of treatment discharge. Only two studies to date have been reported in this area (Joe, 1974c; Simpson et al., 1980). Both projects indicated that addicts who terminate treatment prior to completion have a greater likelihood of returning to treatment later.

Client Characteristics

Age. Studies conducted at Lexington (Ball et al., 1970b) and a long-term TC (Katz et al., 1975) have concluded that older clients were less likely to be recidivists. Mayo (1974) examined repeat drug overdosers who required emergency treatment and found a similar relationship. Simpson (Simpson et al., 1978; Simpson et al., 1980), however, analyzed DARP data and found that older clients had the highest rate of recidivism. One possible explanation for this difference was that only Simpson's investigations included the methadone maintenance modality which has generally attracted an older, opiate-addicted, and more chronic patient.

Race. Three studies have examined recidivism rates between Black and White clients. While Ball et al. (1970b)

found that readmission rates at Lexington were higher for White clients, Katz et al. (1975) and Simpson and McRae (1974) found no significant recidivism differences between Black and White patients.

Primary drug of abuse. Simpson (Simpson et al., 1980) has reported that opiate users had the highest readmission figures among all DARP patients. Mayo (1974), however, found primary drug of abuse unrelated to repeated emergency treatment for drug overdose.

Marital status. The two studies conducted in this area found that marital status had no significant relationship to readmission to a long-term TC (Katz et al., 1975) or hospital emergency room for the treatment of drug overdose (Mayo, 1974).

Miscellaneous client characteristics. A few client characteristics have been even more underrepresented in the literature than those listed above. That was, they have only been examined once previously. Two of these client descriptors, religion and education, were shown to have no significant relationship to recidivism (Katz et al., 1975). Isolated significant results suggested that recidivist patients were more likely to be voluntary admissions (Ball et al., 1970b), unemployed (Mayo, 1974), or have extensive criminal

histories (Katz et al., 1974).

It can be seen from the summaries just presented above that the relationship between recidivism and many client and treatment characteristics were often unclear and in need of further study. This was especially true for readmission in the short-term TC, since none of these projects specifically investigated this treatment modality. The present paper was designed to bridge these gaps in knowledge about drug treatment recidivism.

Hypotheses

It has been shown that relapse and recidivism were common experiences in the lives of many drug addicts. The relative merits of repeated drug abuse treatment has been argued pro and con in the literature, but few empirical assessments of this phenomenon have been reported. Moreover, those studies which were conducted have often produced conflicting results and done little to clarify this controversy. The present paper has proposed two possible explanations for these weak and inconsistent findings. The first was that the majority of these recidivism studies examined nationwide data, a practice which some authors felt could obscure information about recidivism which might be available if regional and individual programs were studied (Craig, 1980;

Reed, 1978). A second possibility was that prior reports did not distinguish between rapid and nonrapid readmissions. Research in other areas has suggested that this may be an important distinction to make and may aid the researcher in making qualitative assessments of treatment readmission (De Francisco et al., 1980).

The present study sought to overcome these possible limitations by focusing on a single short-term TC and by dividing all readmissions into rapid and nonrapid categories. It was believed that rapid readmission was a negative outcome and an indication of previous treatment failure. It was therefore specifically hypothesized that the rapid recidivist would be more likely to have higher rates of unfavorable discharges and spend less time in their earlier treatment than nonrapid recidivists. It was further predicted that at the time of their second entry to the TC, rapid readmission patients would also display higher drug usage, higher unemployment, and higher frequency of arrest. A second phase of this analysis was the comparison drawn between the characteristics of rapid and nonrapid readmission clients. While specific hypotheses were not made concerning differences between these groups, any significant demographic differences could provide useful program information to the institution under investigation.

The final analysis undertaken was a comparison made between single and multiple admission patients. While previous literature has been rather scarce and almost nonexistent for the short-term TC, it was expected that abusers with positive early treatment experiences (high LOS and favorable discharge) would be less likely to be readmitted to treatment. Each group's demographics, drug, and psychosocial histories were also contrasted. It was hypothesized that the readmitted client would be significantly younger and a user of opiates.

METHOD

Patients

Data were collected from the records of patients admitted to a short-term TC between the years 1975 through 1978. This sample consisted of 808 male veterans who accounted for 1186 admissions during this period. There were 566 single admission patients (70.5%) and 242 who were admitted on more than one occasion. The patients ranged in age from 19 to 62, but the majority were in their twenties ($\bar{x}$ = 29.93; median = 27.61). Forty-nine percent of the subjects were Black, 46.8% were White, 4.2% were Hispanic. While heroin was listed as the primary drug of abuse by 78% of the sample, 84.4% reporting abusing at least two substances on a regular basis.

The mean LOS for all first admissions was 3.13 weeks (median = 1.93). Approximately 47% of these patients received a positive discharge (n = 385), 42% received an unfavorable dischage (n = 341), and 10% had an official status of "transferred" which could not be evaluated as either positive or negative (n = 82).

Treatment Facility

Research was conducted at a short-term TC which was an independent service at a large V. A. medical center. The hospital was located in a suburb outside of Chicago and drew the bulk of its treatment population from that city and its suburbs.

The facility itself was a 20-bed, inpatient unit which accepted voluntary patients with a primary diagnosis of drug dependency. Patients with acute medical complications or a solitary diagnosis of alcohol dependency were referred to the general medical hospital or alcoholism treatment unit within the same medical facility. Treatment staff changed slightly over the four-year period but was headed by a psychologist and included a physician, a social worker, rehabilitation technicians were were ex-addicts, nursing staff, and occasional trainees from various disciplines.

The program consisted of two successive phases. Phase one was a detoxification stage which lasted from two to three weeks depending upon the severity of the patient's addiction or abuse. The majority of individuals who entered treatment were admitted to this phase (87.1%). Individuals who were completely drug-free were allowed to apply for lengthier rehabilitation in phase two. This occurred upon completion of phase one or soon after admission if the person applying was

currently drug-abstinent. Patients accepted into phase two agreed to remain for a minimum of one month up to a maximum of three months (further extensions could be granted in exceptional cases). Treatment was deemed completed if the resident had stayed the 30-day minimum and was in good standing with the community. Virtually all applicants were accepted into phase two except those who had a court appearance scheduled within the first 30 days of treatment. These applicants were encouraged to fulfill this legal obligation and then reapply for admission.

The entire unit was run as a traditional TC except for the length of treatment decribed above. Residents participated in group therapy five times a week and engaged in a rigorous schedule that included other experiential groups, individual therapy, community projects, work chores, recreational events, and a number of ancillary therapies such as learning groups, educational therapy, corrective therapy, and occupational therapy. Each resident had a primary counselor who was a member of the drug treatment staff. In addition, patients were also free to make appointments with other staff personnel (e.g., physician, social worker, psychologist) when appropriate. All rules and regulations of the TC were discussed with new community members, and a booklet containing this information was provided for each. Each resident was in turn expected to fulfill his responsibilities to the community and attend all scheduled activities.

Measures

The measures used in this study were the CODAP Admission Report (CODAP AR Oct. 1974; revised Oct. 1976, Jan. 1977, and Jan. 1978) and the CODAP Discharge Report (CODAP DR Oct. 1974; revised Oct. 1976, Jan. 1977, and Jan. 1978). The following patient background indices were obtained from the CODAP AR: age, race, employment status, years of formal education, current enrollment in an educational or skill development program, number of prior treatment experiences, number of prior treatments in a V.A. facility, number of months since last discharge from any drug treatment program, current type of admission, modality admitted to, medication prescribed, primary drug of abuse, and the usage of four or more different drugs in the month prior to admission. Additional characteristics were obtained for 380 of the subjects who were admitted after March 1977, since all the revised CODAP ARs included more information. These additional indices were: marital status, living arrangements, route of drug administration, and number of arrests in the previous 24 months. Measures relating to patient retention were taken from the CODAP DR. These were: type of discharge and LOS in weeks. These variables were readily available on all forms for all subjects. The measurement of intertreatment time was obtained by comparing the difference between date of first discharge to the date of readmission.

Procedure

All data were collected from carbon copies of the original CODAP forms which were retained by the drug treatment program. The CODAP forms were chosen as the measures for this study since they were widely utilized by treatment programs during this time period and are currently required for every individual who enters a drug treatment facility in this country (Siguel & Spillane, 1977). Thus the data reported were identical to information gathered at other clinics. The comparability of the data was further enhanced by a number of features. The first was that the CODAP system periodically trained individuals from all clinics in the proper usage of CODAP forms and provided an instruction manual and handbook to all participating clinics (NIDA, 1978a). In addition, all patients entering treatment were assigned an identification number. The National Institute of Drug Abuse (NIDA) monitors all reports it receives and checks the new data on a monthly basis for accuracy. When contradictory data are found for a patient, the NIDA sends error reports to the clinic reporting the new admission. These errors were then corrected on all forms and resubmitted to NIDA. Thus, users of the CODAP system were assured that the data gathered at all facilities were obtained in a common fashion and that errors in data and administration were minimal. As a result of these checks, only a handful of discrepancies were found in the current data.

These were resolved by comparing the item in question with the patient's medical file and other hospital records.

All CODAP revisions have contained the identical information found on prior issues. Some additional items were, however, included on the October 1976 revision and had been maintained on subsequent revisions. These additional client descriptives were included in the analyses of the present study.

A complete description of the variables under investigation are listed in Table 1. Items 1 through 20 were client features obtained from the CODAP AR, while items 21 and 22 were measures of retention taken from the CODAP DR. Because of the highly skewed distribution, the patients' ages were divided into decile groups. All other continuous data did not require transformations, but non-continuous data were dichotomized into meaningful categories. All these recodings are illustrated in Table 1, while the original CODAP forms and codings can be examined in Appendix A.

It must be mentioned that all client characteristics gathered from the CODAP AR were obtained through direct interview with the individual patient. Klein (1977), among others, has suggested that such information may be subject to distortion by the addict and unreliable for research. Contrary to this popular belief, however, a great deal of

Table 1

Definitions and Coding of Client

Characteristics and Retention Variables

Variable Number	Description
1	"Age" coded in deciles
2	"Race" coded: 1 = White; 2 = Minority
3	"Employment status" coded: 1 = unemployed; 2 = part- or full-time employed
4	"Education" coded by highest grade completed
5	"Currently in educational or skill development program" coded: 1 = yes; 2 = no
6	"Number of prior treatments" coded by number
7	"Number of prior V.A. treatments" coded by number
8	"Time elapsed since last discharge" coded in months
9	"Current admission type" coded: 1 = first admission; 2 = transfer or readmission
10	"Modality admitted to" coded: 1 = detoxification 2 = drug free
11	"Medication prescribed" coded: 0 = none; 1 = methadone
12	"Primary drug of abuse" coded: 1 = heroin; 2 = all others
13	"Frequency of primary drug of abuse" coded: 1 = daily; 2 = less than daily
14	"Number of years using primary drug of abuse" coded in years
15	"Number of years using primary drug of abuse once per week or more often" coded in years
16	"Usage of four or more drugs in the past month" (polydrug) coded: 1 = yes; 2 = no
17	"Marital status" coded: 1 = never married; 2 = married at some time
18	"Living arrangement" coded: 1 = living with parents, spouse, or alone; 2 = living with others
19	"Route of drug administration" coded: 1 = intravenous; 2 = non-intravenous
20	"Number of arrests in last 24 months" coded by number
21	"Length of stay" coded in weeks
22	"Type of discharge" coded: 1 = favorable (completed treatment, transferred to outpatient); 2 = unfavorable (noncompliance with rules, left before completing treatment)

research had indicated that an addict's self-report was highly reliable and consistently reflected data obtained from hospital records, legal records, and acquaintances of the drug abuser (Amsel, Mandell, Matthias, Mason, & Hocherman, 1976; Bale, 1979b; Ball, 1967; Bonito, Nurco, & Shaffer, 1976; Katz et al., 1975; Maddox & Desmond, 1974, 1975; Stephens, 1972). The most comprehensive study of this nature was conducted by Maddox and Desmond (1975), who examined patient reliability and validity on 12 life history variables. These authors found that there was exact or approximate agreement on 9 of the 12 variables including age, language spoken, military service, age of first drug use, intactness of family to age 11 years, education, and age at first marriage. Only the number of months employed, number of prior treatments, and number of prior arrests appeared to be inaccurate (underreported) by these patients. These authors concluded, however, that even such information was sufficiently reliable for research purposes. Amsel et al. (1976) and Bonito et al. (1976) similarly discovered some discrepancies on questions related to criminal history. With further research, however, both studies found that the police files themselves tended to be as unreliable and incomplete as the patient responses.

Only one study to date has concluded that an addict's reports were unreliable. This research was conducted by

Newman, Cates, Tytun, and Werbell (1976) and limited its investigation to the reported age of first opiate use. They found that 31% of their subjects had discrepancies of 3 or more years. A few confounds existed in this study, however, as further data analysis revealed that the most unreliable patients were the oldest addicts who also had the greatest elapsed time between first drug use and research interview. Another problem was that all patients were opiate addicts who needed a two-year history of addiction to be placed or continued on methadone maintenance. Addicts who were aware of this contingency may then have altered these dates to obtain treatment. Since the present report was performed at a drug-free institution (no methadone maintenance), which accepted individuals regardless of their criminal history, it was assumed that these biases were minimal.

Method of Analysis

After all recidivists were identified, a calculation was made of the time that had elapsed between their first and second admission. Patients with six or less months between treatments were classified as rapid recidivists, while those having an intertreatment period of seven or more months were classified as nonrapid recidivists. These groups were then compared on the LOS and type of discharge for their first admission. Other comparisons were also

made between these two groups on five outcome measures recorded at the time of readmission. These were: frequency of drug usage, primary drug abused, route of drug administration, employment status, and frequency of arrests. A chi-square analysis was used to compare dichotomous data while a t-test was used to test significance for continuous data. An attempt was then made to predict type of readmission on the basis of data obtained at the time of original admission. The first step was to randomly divide all drug abusers into two Groups, A and B. A multiple regression analysis was then conducted with Group A data with type of readmission (rapid or nonrapid) serving as the dependent variable. The independent predictors were the 22 client descriptors listed in Table 1. The B weights and constant obtained from this analysis were then combined with Group B data in an attempt to cross-validate any significant results.

The patients were then reclassified into recidivist and nonrecidivist categories. These groups were then compared on the LOS and type of discharge received during their first treatment. An attempt to predict which patients were the most likely to become recidivists was then made. This was also done through a multiple regression approach with the 22 client characteristics of Table 1 used as independent variables. The random division of patients and cross-validation procedure described above was again employed.

RESULTS

Relationship between type of readmission and outcome criteria

The first group of analyses undertaken was the comparison of rapid and nonrapid recidivists on five outcome variables recorded at the time of their second admission. These five measures were: number of times arrested in the past 24 months, employment status, primary drug of abuse, frequency of drug usage, and most common route of drug administration. Number of arrests was the first variable investigated and the *t*-test comparison of these groups is presented in Table 2. The resultant $t(72)$ of .64 failed to achieve significance at the .05 level, and did not allow for the rejection of the null hypothesis. Further reflection on these data, however, suggested that the raw comparison of overall arrests may not have been a fair comparison, as recidivists were out of treatment for longer periods of time than rapid recidivists. The nonrapid recidivist may therefore have an increased risk of engaging in illegal acts and getting arrested since they were not confined to the TC setting. A new measure of arrest record was therefore devised by dividing the number of arrests over the previous 24 months into the number of months between admissions. While this new measure was not an exact calculation of the number of arrests each drug abuser incurred

Table 2

Comparison of Rapid and Nonrapid Recidivist on the Mean Number of Arrests in the 24 Months Prior to Admission

Type of Recidivist	*n*	$\bar{x}$	*s d*	*t*
Rapid	37	1.35	1.75	.64*
Nonrapid	37	1.64	2.20	

*$p > .05$, one-tailed

between TC admissions it was felt that this estimate of that occurrence might provide important information. The comparison of rapid and nonrapid recidivists on this variable was then made and appears here as Table 3. The resultant *t*-value (72) of 6.73, $p < .001$, one-tailed, was a strong indication that differences existed between these groups and suggested that rapid recidivists were arrested with greater frequency during the intertreatment period. While these results must be viewed with a great deal of caution, they may provide some support for the hypothesis that rapid recidivists were more likely to be arrested between admissions and, therefore, had less successful treatment outcomes than nonrapid recidivists.

The comparison of the four other outcome measures used to compare rapid and nonrapid readmissions are reported in Table 4. These variables were all dichotomous entities and a chi-square was used to test for significance. An inspection of Table 4 revealed that while none of the four measures could significantly differentiate rapid and nonrapid recidivism, all were in the predicted direction. That is, rapid readmission clients displayed higher percentages of unemployment, heroin usage, daily usage, and intravenous route of drug administration. While these differences were very small, they were all consistent with the original hypotheses. It was therefore decided to combine each of these four variables into a single summary criterion which

Table 3

Summary of *t*-test Conducted on the Number of Intertreatment Months per Arrest for Rapid and Nonrapid Recidivists

Type of Recidivist	*n*	$\bar{x}^a$	*s d*	*t*
Rapid	37	1.83	1.37	6.73*
Nonrapid	37	13.51	10.48	

[a]Number of months between first and second admission ÷ the number of arrests in the last 24 months

*$p < .001$, one-tailed

Table 4

Chi-square Comparisons of Rapid and Nonrapid Recidivists on Four Different Outcome Measures

Patient Status	Type of Recidivist: Rapid n	Rapid (%)	Nonrapid n	Nonrapid (%)	Chi-square
Employed	37	(24.0)	22	(25.0)	.028*
Unemployed	117	(76.0)	66	(75.0)	
Heroin Users	131	(85.1)	72	(81.8)	.437*
Nonheroin Users	23	(14.9)	16	(18.2)	
Daily User	106	(68.6)	60	(68.2)	.011*
Less Than Daily User	48	(31.2)	28	(31.8)	
Intravenous User	33	(89.2)	32	(86.5)	.127*
Nonintravenous User	4	(10.8)	5	(13.5)	

*$p > .20$, $df=1$, one-tailed

could then be used to test for a significant trend. A value of two had been assigned to all positive outcomes (gainful employment, nonheroin usage, nondaily drug usage, nonintravenous administration) while a value of one had been assigned to all outcomes judged negative. These four values were then added together so that each of 74 patient had a single outcome score. A total of four would be the worst possible score an individual could receive while a total of eight would be the best. Table 5 presents the results of this comparison between rapid and nonrapid groups. A *t*-value of 1.13 was obtained, which with 72 degrees of freedom, had a .131 probability of occurrence. While this was not a very powerful result, it did suggest that there was a trend for rapid recidivists to receive less favorable composite outcome scores at the time of second admission.

The relationship between first treatment outcome and the type of readmission

On the basis of previous mental health research (DeFrancisco et al., 1980) it was hypothesized that type of readmission could be predicted on the basis of prior treatment outcome. It was expected that nonrapid recidivists were more likely to have had a greater LOS and favorable discharge from their first TC experience. A comparison was therefore conducted between the type of recidivism and the LOS of first hospitalization. The results, summarized in

Table 5

Comparison of Rapid and Nonrapid Recidivists on a Summary Measure of Outcome

Type of Recidivist	n	$\bar{x}$[a]	s d	t
Rapid	37	4.91	1.03	1.13*
Nonrapid	37	5.16	.80	

[a]Mean sum of four outcome measures, 8.0 would be the most positive outcome, 4.0 the least positive

*p = .131, one-tailed

Table 6, supported the LOS hypothesis as nonrapid recidivists spent significantly more time in their first treatment than their rapid counterparts, $t(240) = 1.92$, $p < .05$, one-tailed. Clearly this supported the premise that increased LOS on the first treatment exposure reduces the likelihood of a rapid readmission.

The results for type of discharge were more equivocal, however, and are presented in Table 7. While the percentage of nonrapid patients receiving a favorable first treatment discharge was somewhat greater than the percentage achieved by rapid clients (58.3% versus 55.9%) the chi-square analysis of these data failed to achieve statistical significance, chi-square(1) = .127, $p > .05$. Thus the null hypothesis of no difference was not rejected.

Client features related to rapid and nonrapid readmission

The third phase of this project was the comparison of rapid and nonrapid recidivists on their CODAP characteristics reported at the time of first admission and discharge. Table 8 presents the simple bivariate correlations between patient descriptors and type of readmission for the randomly selected Groups A and B. (For purposes of this analysis rapid readmission was assigned a value of zero and nonrapid readmission was recoded as one.) These correlations along with the intercorrelations of all predictor variables (see Appendix B) were then inspected. Generally

Table 6

Comparison of Rapid and Nonrapid Recidivists on the LOS from Their First Admission

Type of Recidivist	n	$\bar{x}$[a]	s d	t
Rapid	154	2.43	1.94	1.92*
Nonrapid	88	3.09	3.38	

[a]Mean LOS in weeks

*$p < .05$, one-tailed

Table 7

Chi-square Analysis for Type of Discharge from First Admission for Rapid and Nonrapid Recidivists

Type of Discharge	Type of Recidivist				
	Rapid		Nonrapid		
	n	(%)	n	(%)	Chi-square
Favorable	76	(55.9)	49	(58.3)	.127*
Unfavorable	60	(44.1)	35	(41.7)	

*$p > .05$, $df=1$, one-tailed

Table 8

Bivariate Correlations (r) of the 22 Predictor Variables with Type of Readmission for Group A and B Patients

Predictor Variable[a]	Group A		Group B	
	n	r	n	r
1	121	-.098	121	-.061
2	121	.051	121	-.211**
3	121	-.024	121	.185**
4	121	.072	121	.036
5	121	-.109	121	-.073
6	121	-.019	121	-.029
7	121	-.009	121	-.031
8	121	-.166*	121	.127
9	121	.091	121	.009
10	121	-.128	121	-.135
11	121	.144	121	.096
12	121	-.106	121	-.065
13	121	-.052	121	.114
14	121	-.052	121	-.092
15	121	-.149*	121	-.078
16	121	.003	121	-.064
17	20	.308	20	.104
18	20	.080	20	.062
19	20	.215	20	-.210
20	20	.585***	20	-.077
21	121	.137	120	.106
22	114	-.081	106	.027

[a]Variable numbers are identified in Table 1

*$p < .10$ two-tailed
**$p < .05$ two-tailed
***$p < .01$ two-tailed

these correlations were quite low, especially those between the predictors and criterion. Even more discouraging, however, was the observation that no predictor which achieved a significant relationship to recidivism in one group achieved that significance in the other. Quite the contrary, four of the five variables which achieved a significant relationship to readmission in one sample group actually displayed the opposite relationship in the other sample group (variables 2, 3, 8, and 20). These results strongly implied that the relationships between these client features and a categorical measure of readmission was highly unstable.

Further inspection of the data revealed that, despite the inconsistencies mentioned above, a few predictors (10, 11, 15, and 21) appeared to have a very weak but consistent relationship to type of recidivism. A stepwise multiple regression was therefore conducted on Group A with the hope the predictors might combine in ways that would improve upon the current chance predictions. Any such significant occurrence could then be cross-validated with Group B data. The actual regression was conducted by first selecting the predictor which had the highest correlation with the criterion and then selecting each subsequent predictor on the basis of how much unique variance it could account for in a regression equation. Since variables 17 through 20 had substantially fewer data points than the other variables they were excluded from further multiple regression analyses. Instead

their individual relationships with type of discharge was recorded. These Pearson correlations all failed to achieve statistical significance and can be found in Table 9.

The results of the stepwise multiple regression conducted with Group A data is presented in Table 10. With six predictors in the equation a multiple R of .336 was obtained, which accounted for 11.3% of the variance in the criterion variable. Thus, while the relationship between the best predictors and criterion was significant at the .05 level, $F(6,107) = 2.27$, it was not very impressive in magnitude.

The six B weights obtained in this procedure were then placed into a regression equation and the data from Group B were entered. A value of .064 was thus obtained. This later figure was a Pearson r which represents the relationship between the real and predicted type of readmission values as predicted by Group A data. The Pearson r of .064 was quite low and indicated that there was a great deal of shrinkage from the original multiple R of .336. This strongly suggested that the original multiple R was unstable and may have been due to sampling error.

While the above analysis indicated that CODAP client characteristics could not reliably predict type of readmission it was felt that further analysis was needed. The necessity for additional computation was justified by the fact that the previous analysis merely examined readmission

Table 9

Bivariate Correlations (r) Between Four Client Characteristics and Type of Readmission for 40 Patients

Predictor Variable[a]	n	r*
17	40	.200
18	40	.066
19	40	.009
20	40	.249

[a]Variable numbers are identified in Table 1

*$p > .05$ for all variables, two-tailed

Table 10

Summary of Stepwise Multiple Regression Analysis

for Group A with Type of Readmission as Dependent Variable

Step	Predictor Variable Entered[a]	R	R^2	Final B Weights
1	8	.166	.027	-.005
2	21	.221	.049	.024
3	11	.263	.069	.196
4	15	.286	.082	-.030
5	14	.313	.097	.020
6	12	.336	.113	-.212
Constant				.411

[a]Variable numbers are identified in Table 1

as a dichotomous entity, i.e., either rapid or nonrapid. Another multivariate analysis was therefore conducted in which the dependent variable was the number of months spent between first and second admissions. It was hoped that this change in the dependent variable might produce a more robust multiple R which would be better suited to uncover any significant relationship that may have existed between client characteristics and the speed of readmission.

Table 11 provides a summary of the bivariate correlations between the 22 predictors and the number of months between treatment for Groups A and B. (Intercorrelations of the predictor variables are presented in Appendix B.) From the summary it can be seen that no predictor was statistically significant in both A and B samples. On the contrary, two of the five variables sighted as significant in one group actually displayed the opposite relationship in the other sample group (variables 8 and 20). The other three variables (3, 5, and 21), however, were at least consistent in their prediction of the number of months elapsing between admissions.

A further attempt to increase the predictive validity of these variables was then attempted by entering them into a stepwise multiple regression. Once again the data from variables 17 through 20 were too few to justify their use in the regression. They were therefore analyzed separately and are reported in Table 12. More of the resulting correlations

Table 11

Bivariate Correlations (r) of the 22 Predictor Variables with the Number of Months between Treatments for Group A and B Patients

Predictor Variable[a]	Group A		Group B	
	n	r	n	r
1	121	-.040	121	-.054
2	121	.082	121	-.157
3	121	.089	121	.219**
4	121	.071	121	.092
5	121	-.177*	121	-.132
6	121	-.039	121	-.038
7	121	.035	121	-.054
8	121	-.112	121	.223**
9	121	.112	121	.004
10	121	-.100	121	-.037
11	121	.120	121	-.008
12	121	-.137	121	-.025
13	121	-.060	121	.071
14	121	-.018	121	-.108
15	121	-.065	121	-.080
16	121	.010	121	.008
17	20	.328	20	.093
18	20	.008	20	.077
19	20	.289	20	-.132
20	20	.413*	20	-.043
21	121	.223**	121	.104
22	114	-.054	106	.010

[a]Variable numbers are identifed in Table 1

* $p < .10$, two-tailed
** $p < .05$, two-tailed

Table 12

Bivariate Correlations (r) Between Four Client Variables and the Number of Months Elapsed between Admissions

Predictor Variable[a]	n	r*
17	40	.205
18	40	.036
19	40	.069
20	40	.175

[a]Variable numbers are identified in Table 1

*$p > .05$ for all variables, two-tailed

between these four predictors and the elapsed time between treatments achieved significance at the .05 level of probability.

The summary of the multiple regression conducted with Group A data is presented in Table 13. With three predictors in the equation, a multiple R of .315 was obtained, which accounted for nearly 10% of the variance in the criterion variable. The F-ratio (3,110) on step three was 4.10 and achieved significance at the .01 level. The B weights and constant from this regression were then applied to the raw data of Group B and a cross-validation r of .160 was obtained. While this r value was somewhat higher than the one obtained in the earlier cross-validation it nonetheless indicated that there was some shrinkage from the original multiple R of .315. It was therefore concluded that the ability of client characteristics to predict the amount of time elapsing between admissions was marginal and too weak to justify its clinical usefulness.

Examination of background and treatment differences between single and multiple admission patients

The final analyses undertaken in this project were the investigation of the relationships among client characteristics, first treatment outcomes, and the incidence of later readmission. That is, attempts were made to assess if future readmission could be predicted on the basis of data

Table 13

Summary of Stepwise Multiple Regression Analysis for Group A with Nunmber of Months between Treatment as Dependent Variable

Step	Predictor Variable Entered[a]	R	R^2	Final B Weights
1	21	.223	.049	.676
2	5	.283	.080	-4.928
3	9	.315	.099	2.417
Constant				10.793

[a]Variable numbers are identified in Table 1

gathered during a drug abuser's first TC admission. The first step in this process was to examine the relationship between a patient's first admission LOS and whether he was admitted again in the future. The results of this comparison are presented in Table 14. These results indicated that clients with greater LOSs in their first admission were less likely to seek readmission at a future date $t(806) = 2.32$, $p < .05$. This finding may have important implication for treatment planning since it suggested that more treatment time during the first hospitalization may reduce the likelihood of future readmissions to the same institution.

The second analysis undertaken was the comparison of type of first admission discharge with the probability of later readmission. The results reported in Table 15 summarize this chi-square analysis and indicated that this relationship was not statistically significant at the .05 level, one-tailed, chi-square(1) = 1.81. A trend did emerge from these figures, however, since a larger proportion of multiple admission patients had a favorable first treatment discharge than did the single admission patient (56.8% versus 51.4% respectively). While caution must be used in interpreting this result, this occurrence had a chance probability of only .171.

The final comparison of multiple and single admission patients was conducted with the 22 client features described in Table 1. A correlational approach was used with

Table 14

A Comparison of Single and Multiple Admission Clients on the LOS of Their First Admission

Patient Type	n	$\bar{x}^a$	s d	t
Single Admission	566	3.33	4.09	2.32*
Repeater	242	2.67	2.57	

[a]Mean LOS of first treatment

*$p < .05$, two-tailed

Table 15

Chi-square Comparison of Single and Multiple Admission Clients on the Type of Discharge Recieved after Their First TC Experience

Patient Type	Type of Discharge				
	Favorable		Unfavorable		
	n	(%)	n	(%)	Chi-square
Single Admission	260	(51.4)	246	(48.6)	1.818*
Repeater	125	(56.8)	95	(43.2)	

*p = .171, df=1, two-tailed

readmission assigned a value of one and nonreadmission assigned a value of zero. Patients were divided into two random Groups A and B and bivariate correlations were computed between each of the 22 predictor variables and the incidence of readmission. The results in Table 16 indicated that seven of these predictors achieved a significant relationship with the criterion for at least one sample group, and that two of these (variables 11 and 12) were significant in both Groups A and B. This cross-validated result strongly suggested that heroin abusers (11) and patients medicated during their first admission (12) were more likely than their counterparts to become recidivists.

A stepwise multiple regression was then computed from Group A data and is reported in Table 17. With two predictors in the equation a multiple R of .206 was recorded which accounted for 4.2% of the variance. While the F-ratio at this step was significant beyond the .05 level $F(2,107) = 3.29$, the regression's predictive power was extremely limited and was, in fact, the smallest of all multiple Rs obtained during this project.

The B weights and constant from the multiple regression were then applied to the raw data from Group B. The Pearson r obtained in this procedure was .062. This figure indicated that there was considerable shrinkage from an original multiple R that was marginal to begin with.

Table 16

Bivariate Correlations (r) of the 22 Predictor Variables with the Incidence of Readmission for Group A and B Patients

Predictor Variable[a]	Group A		Group B	
	n	r	n	r
1	423	-.059	385	.000
2	423	.063	385	.006
3	423	-.053	385	-.016
4	423	-.016	385	-.010
5	423	-.029	385	-.038
6	423	.068	385	.129**
7	423	.050	385	.121**
8	423	-.010	385	-.015
9	423	.102**	385	.024
10	423	-.047	385	-.047
11	423	.085*	385	.120**
12	423	-.191***	385	-.116**
13	423	-.077	385	-.031
14	423	.007	385	-.069
15	423	-.038	385	-.077
16	423	.013	385	.066
17	125	.030	126	.075
18	125	.018	126	-.046
19	125	-.126	126	-.044
20	125	.049	126	-.135
21	423	-.064	385	-.099*
22	382	-.089*	344	-.006

[a]Variable numbers are identified in Table 1

*$p < .10$, two-tailed
**$p < .05$, two-tailed
***$p < .001$, two-tailed

Table 17

Summary of Stepwise Multiple Regression

with Incidence of Readmission as the Dependent Variable

Step	Predictor Variable Entered[a]	R	R^2	Final B Weights
1	12	.191	.036	-.189
2	9	.206	.042	.079
Constant				.421

[a]Variable numbers are identified in Table 1

DISCUSSION

Evaluation of rapid and nonrapid readmission patients on outcome criteria

The assessment of five outcomes measured at the time of readmission showed few significant differences between rapid and nonrapid recidivists. While these patient groups could not be differentiated on the basis of any single outcome variable, there was evidence that these groups began to show differences when four outcome measures were combined into a summary variable. While these results must be interpreted with caution there was some indication that rapid readmission clients had a greater tendency to be unemployed and daily, intraveneous heroin users. This tendency was not very impressive in magnitude but did provide some weak support for the hypothesis that rapid readmission was an indication of treatment failure. Further research, however, is needed to substantiate this claim.

The results of the arrests outcome analysis were also somewhat equivocal as rapid and nonrapid recidivists did not differ significantly on this measure. When arrests during the last two years were adjusted for the amount of time spent out of the hospital, however, some of the predicted differences began to emerge. While these results were

somewhat speculative, they did suggest that rapid recidivists may have a greater tendency to be arrested between treatment. One problem with this conclusion was the fact that rapid readmission patients were more likely to have their pre-first treatment arrests included with their between treatment arrests. While this was a possible bias in the variable recorded, the contrast displayed by figures in Table 3 were quite striking and merit further study. The tendency of the present report was to conclude that these arrest figures reflect more negatively on rapid readmission but that further research was needed to substantiate this position.

One possible reason for the failure of all outcome measures to strongly support the original hypotheses could be that these variables were not sensitive enough to change. One example of this insensitivity was the measure of criminality used in this project. While number of arrests was a useful variable to measure, it was subject to many influences that may not correlate with the actual incidence or intensity of a patient's criminal activities. Getting arrested for a traffic violation has a different qualitative meaning than getting arrested for assault for example, yet both would be registered on a single arrest by the data available from this study. A further complication could occur if a drug abuser was arrested after a TC treatment for a crime he committed before entering the hospital. In this

instance the arrest would be recorded as a negative treatment outcome when in fact it may have nothing to do with the post-discharge behavior of the client or the effectiveness of the TC program. Thus, while arrest record and the other four outcome variables used in this study were good gross measures of patient behavior, more sensitive measures of adjustment may be needed to assess subtle post-treatment changes. It was suggested therefore that future research should supplement global CODAP data with measures taken from personality tests and interviews conducted with the drug abuser and significant others in his life.

A second possible explanation for these results also exists. This was the fact that rapid and nonrapid recidivists may have had significant pre-treatment differences in their drug usage, employment and criminal background. A post hoc inspection of the data indicated that this argument may have some credence. Table 18 was, therefore, assembled to compare rapid and nonrapid readmission patients on the five outcome variables recorded at the time of their first and second hospitalizations. From this table it can be seen that these groups do not differ appreciably on employment status, frequency of drug use, or route of drug administration. Differences could be seen, however, on the incidence of heroin usage and the number of arrests in the previous 24 months. That is, nonrapid recidivists appeared to display a reduced heroin usage (90.9% down to

Table 18

Relative Incidence of Five Unfavorable Outcome Measures at First and Second Admission for Rapid and Nonrapid Recidivists[a]

	Type of Recidivist			
	Rapid		Nonrapid	
Patient Status	1st Admission	2nd Admission	1st Admission	2nd Admission
Unemployed	79.9	76.0	72.7	75.0
Heroin User	85.1	85.1	90.9	81.8
Daily User	79.9	68.6	77.3	68.2
Intravenous User	84.6	89.2	85.7	86.5
Number of Arrests	1.09	1.35	2.28	1.64

[a]The figures reported for the number of arrests were the mean number of arrests in the last 24 months. All other figures are percentages.

81.8%) and a reduction in the frequency of being arrested in a 24 month period (2.28 down to 1.64 arrests). Rapid readmission patients, however, showed no obvious difference between first and second admission on these variables while this was a post hoc observation these results do suggest an alternative interpretation of these results, one which should be considered in future research.

The effects of previous treatment on later type of readmission

The results previously presented in Table 6 provided strong support for the position that patients who participated in a lengthy first treatment were more likely to be nonrapid recidivists. Rapid repeaters, on the other hand, were more likely to have briefer LOSs. This implied that participation in a long first treatment experience may actually increase the amount of time an individual can function in society without having to be readmitted.

Table 7 summarized the relationship between type of first discharge and type of later readmission. While nonrapid recidivists had a higher percentage of positive discharge from their original admission, this result did not achieve statistical significance. Thus, it was concluded that no significant difference could be shown on the type of previous discharge for rapid and nonrapid recidivists.

The overall effects of the first treatment on the rate of later readmission remained somewhat unclear, since LOS

appeared to have some positive influence while type of discharge did not. One possible explanation for the failure of previous discharge status to predict the speed of recidivism, may have been that it was too global a measure. Further research could explore this possibility by employing other measures of treatment outcome such as staff and self-ratings of adjustment at the time of first discharge. It is possible that these additional measures may be more sensitive to subtle differences in outcome than the incidence of positive and negative discharge were. If this is so they would provide a more refined assessment of the first treatment's qualitative value.

Client characteristics related to rapid and nonrapid readmission

Two separate multiple regression analyses were used to assess the relationship between a variety of patient descriptors and the speed of readmission. The dependent measure in the first regression was a dichotomous measure (rapid or nonrapid readmission) while the second analysis used a continuous variable dependent measure (number of months between first and second admissions). In both cases, however, no reliable relationship could be shown between the dependent variable and any individual or combination of the predictors used. These results strongly suggested that the client characteristics studied did not have any useful

predictive power in assessing the speed of individual readmission. Since the CODAP list of client demography and history was very inclusive it was concluded that other factors must be more important in the prediction of the speed of readmission. Among these may be an individual's motivation and personality, program features, outcome measures of the first treatment, and life situation measures such as job skills and support systems. These variables have been largely ignored in drug abuse literature and need more careful investigation.

Treatment factors and client characteristics that differentiate between single and multiple admission clients

The relationship between first treatment outcome and the incidence of later readmission were previously summarized in Tables 14 and 15. These results indicated that multiple admission patients had significantly shorter stays on their first treatment and showed a slight tendency to have a favorable first treatment discharge. While no combination of patient background measures could predict the probability of readmission, two individual characteristics did. These two were the primary drug of abuse and the medications prescribed at first admission. Their specific relationship to readmission was that heroin abusers and patients receiving methadone were the most likely individuals to be readmitted in the future. If these findings are combined with the

previous LOS and discharge status results some further speculations can be made about the most frequent patterns of readmission.

It was suggested that a large proportion of this hospital's readmissions were heroin addicts who entered the TC for a brief period of time (up to three weeks) to detoxify themselves from this drug. Gradually reduced amounts of methadone were prescribed to ease this withdrawal. Upon completion of their detoxification these individuals elected not to enter the rehabilitation phase of the program, and so were favorably discharged after a short hospitalization. While this description was somewhat speculative it was one highly probable interpretation of these results and merits further investigation. If subsequently validated this phenomenon could then be compared to the trends displayed at other treatment centers in the area to see if this was a regional pattern or more specific to this institution. The appropriateness of program goals could then be assessed and modifications, if necessary, could then be made. For example, if this pattern of admission and discharge for heroin addicts was particular to this TC, program factors such as methadone dosage, staff attitudes toward detoxification and program philosophy need to be reevaluated and changed if appropriate. If the pattern was typical of all regional programs, however, it will say more about the types of abusers seeking treatment than it will about specific program features.

Summary of conclusions and limitations

This project was a broad investigation of factors which might be related to recidivism in a short-term TC. It should be considered exploratory in nature since it attempted to relate a number of client and program features to rapid and nonrapid readmission, a dimension not previously examined in the area of drug abuse. Results indicated that rapid recidivists displayed a very weak but consistent tendency to receive less favorable scores on traditional outcome measures taken at the time of second admission to the program. While these results were just tendencies, they provided some support for the utility of the rapid-nonrapid concept since they did suggest that rapid recidivism was more likely to be considered an unfavorable treatment outcome. The data also indicated that rapid recidivists had a significantly briefer LOS for the first admission. Rapid readmission might therefore have been caused in part by a lack of sufficient treatment at the time of first admission. Other results indicated that no significant relationship existed between the recidivism criteria and a variety of client background measures. It was concluded by the investigator that since the speed of readmission was not related to these variables, other features such as an individual's motivation and personality might be. It was further suggested that further research on the rapid-nonrapid dichotomy should employ a greater variety of

measures sensitive to these traits. Such variables should include scores from personality tests and pre- and post-treatment ratings of adjustment by the patient, TC staff, and significant others in the life of the drug abuser.

The comparison of single and multiple admission patients produced a few significant results. These were that recidivists tended to be heroin abusers who had relatively brief LOSs during their first admission. All other examined variables, however, failed to achieve a significant relationship with the incidence of readmission. It was again suggested that while the topic of recidivism was worthy of further investigation the additional measures of personality and treatment outcome described above should be included.

One major limitation of this project was its focus on readmission within a single short-term TC. With this limited perspective no assessment could be made about clients who entered other treatment facilities or simply did not return to the facility under investigation. While this presented some difficulty in generalizing this research, the present study was designed as a first step in the investigation of drug treatment readmission. It should therefore be considered exploratory in nature and as an idea generating vehicle for future program evaluation and treatment research. A follow-up study is currently being planned at this TC to further this analysis along such lines. The new

project will attempt to locate a random sample of the patients used in the present research. These subjects will then be interviewed about their post-treatment adjustment, support systems, and subsequent treatment history.

A second general limitation of this study was the length of the follow-up period used. While this time span was from one to four years, at least one author has suggested that a period of at least five years was required for research of this type (Vaillant, 1974). Plans have therefore been made to continue the analysis of these patients for a continued span of time.

A final limitation of this study was its exclusive reliance on CODAP data. It has previously been argued that these measures of client demography and background may not have been sensitive enough to measure patient differences that took place between admissions, and that additional variables should be included in future research. This should not be done at the exclusion of CODAP data, however, since CODAP measures are readily available at all other drug treatment facilities in the United States and can facilitate the comparison of populations from different drug treatment centers.

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APPENDIX A

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION
NATIONAL INSTITUTE ON DRUG ABUSE

FORM APPROVED
OMB NO. 68-R1442

CODAP ADMISSION REPORT

REPORT IDENTIFICATION — CARD 1

1. Clinic Identifier: [ ][ ][ ][ ][ ][ ][ ][ ] Col. 10-17
2. Date Form Completed: Month [ ][ ] Day [ ][ ] Year [ ][ ] Col. 18-23

ADMISSION STATUS

3. Client Number: [ ][ ][ ][ ][ ][ ][ ][ ][ ] Col. 24-33 (29)
4. Date of Admission: Month [ ][ ] Day [ ][ ] Year [ ][ ] Col. 34-39
5. Admission Type [ ] Col. 40
   - 1 = First Admission *(to any Clinic within Program)*
   - 2 = Readmission *(to any Clinic within Program)*
   - 3 = Transfer Admission *(from another CODAP Clinic within Program)*
   - 4 = Transfer Admission *(from a non-CODAP Clinic within Program)*
6. Modality Admitted To [ ] Col. 41
   - 1 = Detoxification
   - 2 = Maintenance
   - 3 = Drug Free
   - 9 = Other *(Specify in Remarks)*
7. Environment Admitted To [ ] Col. 42
   - 1 = Prison
   - 2 = Hospital
   - 3 = Residential
   - 4 = Day Care
   - 5 = Outpatient
8. Medication(s) Prescribed [ ][ ] Col. 43-44; [ ][ ] Col. 45-46
   - 00 = None
   - 01 = Methadone
   - 02 = LAAM
   - 03 = Propoxyphene-N
   - 04 = Naloxone
   - 05 = Cyclazocine
   - 06 = Disulfiram
   - 07 = Other Antagonist
   - 99 = Other *(Specify in Remarks)*
9. Legal Status [ ][ ] Col. 47-48
   - 01 = Voluntary
   - 02 = NARA I
   - 03 = BOP-NARA II
   - 04 = NARA III
   - 05 = BOP IPDDR
   - 06 = BOP Study
   - 07 = BOP Probationer
   - 08 = Other BOP
   - 09 = Federal TASC
   - 10 = VA ASMRO
   - 20 = State Non-Voluntary
   - 30 = Local Non-Voluntary

CLIENT CHARACTERISTICS

10. Sex [ ] Col. 49
    - 1 = Male
    - 2 = Female
11. Year Of Birth 19[ ][ ] Col. 50-51
12. Race Or Ethnic [ ][ ] Col. 52-53
    - 01 = White
    - 02 = Black
    - 03 = American Indian
    - 04 = Japanese
    - 05 = Chinese
    - 06 = Other Asian
    - 07 = Puerto Rican
    - 08 = Mexican American
    - 09 = Cuban
    - 99 = Other *(Specify in Remarks)*
13. Employment Status [ ] Col. 54
    - 0 = Unemployed
    - 1 = Part-time *(less than 30 hours per week)*
    - 2 = Full-time *(30 or more hours per week)*

EDUCATION STATUS

14. Last Formal School Year Completed (00-20) [ ][ ] Col. 55-56
15. Currently In Education Program 1 = Yes 2 = No [ ] Col. 57
16. Currently In Skill Development Program 1 = Yes 2 = No [ ] Col. 58

PRIOR TREATMENT

17. Number Of Prior Treatment Experiences *(in any drug treatment Program)* [ ][ ] Col. 59-60
18. Months Since Last Treatment Experience [ ][ ] Col. 61-62

DRUG PROBLEMS

CARD 2	PRIMARY PROBLEM	Col.	SECOND PROBLEM	Col.	THIRD PROBLEM	Col.
19. Drug Type(s)	[ ][ ][ ]	10-11	[ ][ ][ ]	19-20	[ ][ ][ ]	28-29
20. Frequency of Use At Admission	[ ]	12	[ ]	21	[ ]	30
21. Year of First Use	19[ ][ ]	13-14	19[ ][ ]	22-23	19[ ][ ]	31-32
22. Year of First Continuing Use	19[ ][ ]	15-16	19[ ][ ]	24-25	19[ ][ ]	33-34
23. Year of Last Continuing Use	19[ ][ ]	17-18	19[ ][ ]	26-27	19[ ][ ]	35-36

24. Has Problem With More Than 3 Drugs 1 = Yes 2 = No [ ] Col. 37

DRUG TYPES

- 00 = None
- 01 = Heroin
- 02 = Illegal Methadone
- 03 = Other Opiates & Synthetics *(with morphine-like effects)*
- 04 = Alcohol Abuse
- 05 = Barbiturates
- 06 = Other Sedatives, Hypnotics or Tranquilizers
- 07 = Amphetamines
- 08 = Cocaine
- 09 = Marijuana/Hashish
- 10 = Hallucinogens
- 11 = Inhalants
- 12 = Over-the-counter
- 99 = Other *(Specify in Remarks)*

FREQUENCY OF USE AT ADMISSION

- 0 = No present use
- 1 = Less than once per month
- 2 = Less than once per week
- 3 = Once per week
- 4 = Several times per week
- 5 = Daily

REMARKS

25. Coded: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
26. Written: 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68

The information entered on this form will be handled in the strictest confidence and will not be released to unauthorized personnel.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION
NATIONAL INSTITUTE ON DRUG ABUSE

FORM APPROVED
OMB NO. 68-R1442

CODAP DISCHARGE REPORT

REPORT IDENTIFICATION

CARD 1 Col.

1. **Clinic Identifier:** [ ][ ][ ][ ][ ][ ][ ][ ] 10-17

2. **Date Form Completed:** Month [ ][ ] Day [ ][ ] Year [ ][ ] 18-23

DISCHARGE STATUS

3. **Client Number:** [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] 24-33

4. **Date of Discharge:** Month [ ][ ] Day [ ][ ] Year [ ][ ] 34-39

5. **Date of Admission to This Clinic:** Month [ ][ ] Day [ ][ ] Year [ ][ ] 40-45

6. **Reason for Discharge** [ ] 46
   - 1 = Completed Treatment
   - 2 = Transfer to another CODAP Clinic within Program
   - 3 = Transfer to a non-CODAP Clinic within Program
   - 4 = Referred outside Program
   - 5 = Program decision to discharge Client for non-compliance to Program rules
   - 6 = Client left before completing treatment
   - 7 = Incarcerated
   - 8 = Death

7. **Modality at Time of Discharge** [ ] 47
   - 1 = Detoxification
   - 2 = Maintenance
   - 3 = Drug Free
   - 9 = Other *(Specify in Remarks)*

8. **Environment at Time of Discharge** [ ] 48
   - 1 = Prison
   - 2 = Hospital
   - 3 = Residential
   - 4 = Day Care
   - 5 = Outpatient

9. **Medication(s) Prescribed** [ ][ ] 49-50 [ ][ ] 51-52
   - 00 = None
   - 01 = Methadone
   - 02 = LAAM
   - 03 = Propoxyphene-N
   - 04 = Naloxone
   - 05 = Cyclazocine
   - 06 = Disulfiram
   - 07 = Other Antagonist
   - 99 = Other *(Specify in Remarks)*

TIME IN TREATMENT

10. **Number of Months and Weeks of Uninterrupted Treatment Prior to This Discharge** *(In any and all Clinics in this Program)*
    Months [ ][ ] 53-54
    & Weeks [ ] 55

CLIENT CHARACTERISTICS

11. **Sex** 1 = Male 2 = Female [ ] 56

12. **Year of Birth** 19[ ][ ] 57-58

13. **Race or Ethnic** [ ][ ] 59-60
    - 01 = White
    - 02 = Black
    - 03 = American Indian
    - 04 = Japanese
    - 05 = Chinese
    - 06 = Other Asian
    - 07 = Puerto Rican
    - 08 = Mexican American
    - 09 = Cuban
    - 99 = Other *(Specify in Remarks)*

14. **Employment Status at Time of Discharge** [ ] 61
    - 0 = Unemployed
    - 1 = Part-time *(less than 30 hours per week)*
    - 2 = Full-time *(30 or more hours per week)*

EDUCATION STATUS AT TIME OF DISCHARGE

15. **Last Formal School Year Completed** (00-20) [ ][ ] 62-63

16. **Currently in Education Program** [ ] 64
    - 1 = Yes
    - 2 = No

17. **Currently in Skill Development Program** [ ] 65
    - 1 = Yes
    - 2 = No

DRUG USE STATUS AT TIME OF DISCHARGE

18. **Identify Drugs Used, if any** [ ][ ] 66-67 [ ][ ] 68-69 [ ][ ] 70-71
    - 00 = None
    - 01 = Heroin
    - 02 = Illegal Methadone
    - 03 = Other Opiates & Synthetics *(with morphine-like effects)*
    - 04 = Alcohol Abuse
    - 05 = Barbiturates
    - 06 = Other Sedatives, Hypnotics or Tranquilizers
    - 07 = Amphetamines
    - 08 = Cocaine
    - 09 = Marijuana
    - 10 = Hallucinogens
    - 11 = Inhalants
    - 12 = Over-the-counter
    - 99 = Other *(Specify in Remarks)*

REMARKS

19. Coded

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35

20. Written

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION
NATIONAL INSTITUTE ON DRUG ABUSE

FORM APPROVED
OMB No. 68-R1442

CLIENT ORIENTED DATA ACQUISITION PROCESS (CODAP)

ADMISSION REPORT (AR)

CARD 1

1. CLINIC IDENTIFIER [ ][ ][ ][ ][ ][ ][ ][ ] 11-18

2. DATE FORM COMPLETED (Month Day Year) [ ][ ][ ][ ][ ][ ] 19-24

3. CLIENT NUMBER [ ][ ][ ][ ][ ][ ][ ][ ] 25-34

4. DATE OF ADMISSION TO THIS CLINIC (Month Day Year) [ ][ ][ ][ ][ ][ ] 35-40

5. ADMISSION TYPE [ ] 41
1 = First Admission—To Any Clinic Within This Program
2 = Readmission—To Any Clinic Within This Program
3 = Transfer Admission—From Another CODAP Reporting Clinic Within This Program
4 = Transfer Admission—From A Non-CODAP Reporting Clinic Within This Program

6. MODALITY ADMITTED TO *(See reverse side for codes)* [ ] 42

7. ENVIRONMENT ADMITTED TO *(See reverse side for codes)* [ ] 43

8. MEDICATION PRESCRIBED *(See reverse side for codes)* [ ][ ] 44-45

9. SEX 1 = Male 2 = Female [ ] 46

10. DATE OF BIRTH (Month Year) [ ][ ][ ][ ] 47-50

11. RACE/ETHNIC BACKGROUND *(See reverse side for codes)* [ ][ ] 51-52

12. SOURCE OF REFERRAL *(See reverse side for codes)* [ ][ ] 53-54

13. MARITAL STATUS *(See reverse side for codes)* [ ] 55

14. LIVING ARRANGEMENT *(See reverse side for codes)* [ ] 56

15. EMPLOYMENT STATUS *(See reverse side for codes)* [ ] 57

16. CURRENTLY A HOMEMAKER *(Maintains a household with one or more dependents)* 1 = Yes 2 = No [ ] 58

17. HIGHEST SCHOOL GRADE COMPLETED (00-20) [ ][ ] 59-60

18. CURRENTLY IN EDUCATIONAL OR SKILL DEVELOPMENT PROGRAM 1 = Yes 2 = No [ ] 61

19. NUMBER OF TIMES ARRESTED WITHIN 24 MONTHS PRIOR TO THIS ADMISSION *(00 for none)* [ ][ ] 62-63

20. NUMBER OF PRIOR ADMISSIONS TO ANY DRUG TREATMENT PROGRAM *(00 for none)* [ ][ ] 64-65

21. MONTHS SINCE LAST DISCHARGE FROM ANY DRUG TREATMENT PROGRAM *(00 = none; 97 = not applicable)* [ ][ ] 66-67

22. HEALTH INSURANCE TYPE *(See reverse side for codes)* [ ] 68

Item 23—DRUG TYPE(S) USED

Indicate in the following order:

—Drug problems for which the client is being admitted for treatment

—Other drugs used during the month prior to admission

If 00 for None is entered, leave Items 24-28 blank.

00 = None
01 = Heroin
02 = Non-Rx Methadone
03 = Other Opiates and Synthetics
04 = Alcohol
05 = Barbiturates
06 = Other Sedatives Or Hypnotics
07 = Amphetamines
08 = Cocaine
09 = Marihuana/Hashish
10 = Hallucinogens
11 = Inhalants
12 = Over-The-Counter
13 = Tranquilizers
14 = Other

Item 24—SEVERITY OF DRUG PROBLEM(S) AT TIME OF ADMISSION

0 = Not A Problem At Time Of Admission
1 = Primary
2 = Secondary
3 = Tertiary

Item 25—FREQUENCY OF USE DURING MONTH PRIOR TO ADMISSION

0 = No Use During Month Prior To Admission
1 = Once Per Month
2 = Once Per Week
3 = Two To Three Times Per Week
4 = More Than Three Times Per Week
5 = Once Daily
6 = Two To Three Times Daily
7 = More Than Three Times Daily

Item 26—MOST RECENT USUAL ROUTE OF ADMINISTRATION

1 = Oral
2 = Smoking
3 = Inhalation
4 = Intramuscular
5 = Intravenous

PATTERNS OF DRUG USE AT ADMISSION

CARD 2

	11	12	13	14	15	16	17	18
23. DRUG TYPE(S) USED *(Complete all blocks)*								
	19		20		21		22	
24. SEVERITY OF DRUG PROBLEM(S) AT TIME OF ADMISSION								
	23		24		25		26	
25. FREQUENCY OF USE DURING MONTH PRIOR TO ADMISSION								
	27		28		29		30	
26. MOST RECENT USUAL ROUTE OF ADMINISTRATION								

	31	32	33	34	35	36	37	38
27. YEAR OF FIRST USE	19		19		19		19	
	39	40	41	42	43	44	45	46
28. YEAR FIRST USED ONCE PER WEEK OR MORE OFTEN *(Enter 97 for not applicable if never used at this frequency)*	19		19		19		19	

29. CODED REMARKS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	47-77
	47	48				53					58									67						73					77	

ADM 427-1
Rev. 10-76

This report is required by P.L. 92-255. Failure to report may result in the suspension or termination of NIDA Treatment Grant or Contract.
The information entered on this form will be handled in the strictest confidence and will not be released to unauthorized personnel.

ADMISSION REPORT CODES

Listed below are the Codes required for the completion of Items on the front of this Admission Report. This aid is NOT designed to replace the comprehensive definitions and instructions contained in Chapter 2 – Admission Report of the CODAP Instruction Manual and Handbook. *A thorough review of the Instruction Manual and Handbook and its accessibility at the reporting unit is required.*

Item 6 – Modality Admitted To

1 = Detoxification
2 = Maintenance
3 = Drug Free
4 = Other

Item 7 – Environment Admitted To

1 = Prison
2 = Hospital
3 = Residential
4 = Day Care
5 = Outpatient

Item 8 – Medication Prescribed

00 = None
01 = Methadone
02 = LAAM
03 = Propoxyphene-N
04 = Naloxone
05 = Cyclazocine
06 = Disulfiram
07 = Other Antagonist
08 = Naltrexone
09 = Other

Item 11 – Race/Ethnic Background

01 = White (Not Of Hispanic Origin)
02 = Black (Not Of Hispanic Origin)
03 = American Indian
04 = Alaskan Native (Aleut, Eskimo Indian)
05 = Asian Or Pacific Islander
06 = Hispanic-Mexican
07 = Hispanic-Puerto Rican
08 = Hispanic-Cuban
09 = Other Hispanic

Item 12 – Source of Referral

01 = Self Referral
02 = General Hospital
03 = Mental Hospital
04 = Community Mental Health Center
05 = Social Or Community Services Agency
06 = Private Physician Or Mental Health Professional
07 = Central Intake Unit Or Another Drug Treatment Program
08 = Family Or Relative
09 = Friend
10 = Employer
11 = School
12 = NARA I
13 = NARA III
14 = TASC
15 = State/County Probation
16 = State/County Parole
17 = Federal Probation
18 = Federal Parole
19 = Police
20 = Other

FOR BUREAU OF PRISONS ONLY

21 = BOP NARA II
22 = BOP – IPDDR
23 = BOP Study
24 = BOP Probationer
25 = Other BOP (Former / DAP)

FOR VETERANS ADMINISTRATION ONLY

26 = VA ASMRO

Item 13 – Marital Status

1 = Never Married
2 = Married
3 = Widowed
4 = Divorced
5 = Separated

Item 14 – Living Arrangement

1 = Living Alone
2 = Living With Parents
3 = Living With Spouse
4 = Living With Others

Item 15 – Employment Status

1 = Unemployed, Has Not Sought Employment In Last 30 Days
2 = Unemployed, Has Sought Employment In Last 30 Days
3 = Part-Time (Less Than 35 Hours A Week)
4 = Full-Time (35 Or More Hours A Week)

Item 22 – Health Insurance Type

0 = No Health Insurance
1 = Blue Cross/Blue Shield
2 = Other Private Insurance
3 = Medicaid/Medicare
4 = CHAMPUS (Civilian Hospital And Medical Program For The Uniformed Services)
5 = Other Public Funds For Health Care

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION
NATIONAL INSTITUTE ON DRUG ABUSE

FORM APPROVED
OMB No. 85-R1442

CLIENT ORIENTED DATA ACQUISITION PROCESS (CODAP)

DISCHARGE REPORT (DR)

CARD 1

1. CLINIC IDENTIFIER — 11-18
2. DATE FORM COMPLETED (Month, Day, Year) — 19-24
3. CLIENT NUMBER — 25-34
4. DATE OF DISCHARGE FROM THIS CLINIC (Month, Day, Year) — 35-40
5. DATE OF ADMISSION TO THIS CLINIC (Month, Day, Year) — 41-46
6. DATE OF ADMISSION TO THIS PROGRAM (Month, Day, Year) — 47-52
7. REASON FOR DISCHARGE — 53-54
   - 01 = Completed Treatment, No Drug Use
   - 02 = Completed Treatment, Some Drug Use
   - 03 = Transfer To A CODAP Reporting Clinic Within This Program
   - 04 = Transfer To A Non-CODAP Reporting Clinic Within This Program
   - 05 = Referred Outside This Program
   - 06 = Program Decision To Discharge Client For Noncompliance with Program Rules
   - 07 = Client Left Before Completing Treatment
   - 08 = Incarcerated
   - 09 = Death
8. MODALITY AT TIME OF DISCHARGE (See reverse side for codes) — 55
9. ENVIRONMENT AT TIME OF DISCHARGE (See reverse side for codes) — 56
10. SEX (1 = MALE, 2 = FEMALE) — 57
11. DATE OF BIRTH (Month, Year) — 58-61
12. RACE/ETHNIC BACKGROUND (See reverse side for codes) — 62-63
13. MARITAL STATUS (See reverse side for codes) — 64
14. LIVING ARRANGEMENT (See reverse side for codes) — 65
15. EMPLOYMENT STATUS (See reverse side for codes) — 66
16. CURRENTLY A HOMEMAKER (Responsible for household with one or more dependent(s)) (1 = Yes, 2 = No) — 67
17. HIGHEST SCHOOL GRADE COMPLETED (00-21) — 68-69
18. CURRENTLY IN EDUCATIONAL OR SKILL DEVELOPMENT PROGRAM (1 = YES, 2 = NO) — 70
19. SKILL DEVELOPMENT PROGRAM COMPLETED DURING TREATMENT (1 = YES, 2 = NO) — 71
20. NUMBER OF TIMES CLIENT WAS ARRESTED DURING TREATMENT (00 for none) — 72-73

Item 21—DRUG TYPE(S) USED

Indicate in the following order:
- Drug Problem(s) at the time of discharge regardless of frequency of use at discharge
- Other Drug(s) used during month prior to discharge, whether or not a problem.

If 00 for None is entered, leave Items 22-24 blank.

- 00 = None
- 01 = Heroin
- 02 = Non-Rx Methadone
- 03 = Other Opiates and Synthetics
- 04 = Alcohol
- 05 = Barbiturates
- 06 = Other Sedatives Or Hypnotics
- 07 = Amphetamines
- 08 = Cocaine
- 09 = Marihuana/Hashish
- 10 = Hallucinogens
- 11 = Inhalants
- 12 = Over-The-Counter
- 13 = Tranquilizers
- 14 = Other
- 15 = Drug Unknown

Item 22—SEVERITY OF DRUG PROBLEM(S) AT TIME OF DISCHARGE

- 0 = Not A Problem At Time Of Discharge
- 1 = Primary
- 2 = Secondary
- 3 = Tertiary

Item 23—FREQUENCY OF USE DURING MONTH PRIOR TO DISCHARGE

- 0 = No Use During Month Prior To Discharge
- 1 = Once Per Month
- 2 = Once Per Week
- 3 = Two To Three Times Per Week
- 4 = More Than Three Times Per Week
- 5 = Once Daily
- 6 = Two To Three Times Daily
- 7 = More Than Three Times Daily
- 8 = Frequency Unknown

Item 24—MOST RECENT USUAL ROUTE OF ADMINISTRATION

- 1 = Oral
- 2 = Smoking
- 3 = Inhalation
- 4 = Intramuscular
- 5 = Intravenous
- 6 = Route Unknown

PATTERNS OF DRUG USE AT DISCHARGE

CARD 2

	1st	2nd	3rd	4th	5th	6th	7th
21. DRUG TYPE(S) USED (Complete in display)							
22. SEVERITY OF DRUG PROBLEM WITH AT TIME OF DISCHARGE	19	20	21	22			
23. FREQUENCY OF USE DURING MONTH PRIOR TO DISCHARGE	23	24	25	26			
24. MOST RECENT USUAL ROUTE OF ADMINISTRATION	27	28	29	30			

CARD 2

25. CODED REMARKS — 31-80

ADM 427.3
Rev. 10 76

This report is required by P.L. 92-255. Failure to report may result in withholding of Alcohol, Drug Abuse, and Mental Health Treatment Grant or Contract funds. The information entered on this form will be handled in the strictest confidence and will not be released to unauthorized personnel.

DISCHARGE REPORT CODES

Listed below are the Codes required for the completion of Items on the front of this Discharge Report. This aid is NOT designed to replace the comprehensive definitions and instructions contained in Chapter 3 — Discharge Report of the CODAP Instruction Manual and Handbook. *A thorough review of the Instruction Manual and Handbook and its accessibility at the reporting unit is required.*

Item 8 — Modality At Time Of Discharge

1 = Detoxification
2 = Maintenance
3 = Drug Free
4 = Other

Item 9 - Environment At Time Of Discharge

1 = Prison
2 = Hospital
3 = Residential
4 = Day Care
5 = Outpatient

Item 12 — Race/Ethnic Background

01 = White (Not Of Hispanic Origin)
02 = Black (Not Of Hispanic Origin)
03 = American Indian
04 = Alaskan Native (Aleut, Eskimo Indian)
05 = Asian Or Pacific Islander
06 = Hispanic-Mexican
07 = Hispanic-Puerto Rican
08 = Hispanic-Cuban
09 = Other Hispanic

Item 13 — Marital Status

1 = Never Married
2 = Married
3 = Widowed
4 = Divorced
5 = Separated

Item 14 — Living Arrangement

1 = Living Alone
2 = Living With Parents
3 = Living With Spouse
4 = Living With Others

Item 15 — Employment Status

1 = Unemployed, Has Not Sought Employment In Last 30 Days
2 = Unemployed, Has Sought Employment In Last 30 Days
3 = Part-Time (Less Than 35 Hours A Week)
4 = Full-Time (35 Or More Hours A Week)

APPENDIX B

Correlation Matrix for Recidivists Only, Group B

(Recorded in one-hundredths of a unit)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	21
1																	
2	27																
3	-11	- 8															
4	9	11	1														
5	23	0	- 3	- 1													
6	11	-27	-14	- 3	- 0												
7	4	-16	-19	- 3	- 3	79											
8	20	12	11	- 6	6	-10	-16										
9	5	-18	-18	7	8	46	67	-11									
10	-16	-15	-15	- 2	- 0	- 0	- 9	- 6	-14								
11	15	9	13	1	3	- 1	11	8	18	-71							
12	-14	-34	0	4	- 6	15	11	-13	18	- 1	- 2						
13	11	-14	1	1	1	17	16	-12	20	3	2	9					
14	51	18	-12	-12	23	13	2	25	3	- 4	4	-13	13				
15	47	12	-13	-15	21	14	2	27	10	- 6	7	- 4	15	89			
16	15	28	- 2	1	9	2	3	4	10	- 9	6	-29	- 6	6	2		
21	5	- 1	- 2	5	8	1	- 4	4	- 1	13	-17	- 6	5	10	6	3	
22	- 9	- 3	1	7	-13	5	14	-11	14	6	-11	-10	- 6	- 8	- 1	- 1	-20

Correlation Matrix for All Patients, Group A

(Recorded in one-hundredths of a unit)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1																					
2	26																				
3	- 2	- 9																			
4	4	3	0																		
5	15	- 3	0	-17																	
6	18	- 2	- 8	- 1	8																
7	3	- 6	- 3	- 2	4	67															
8	12	9	- 5	- 5	1	3	1														
9	-12	-14	2	1	5	29	49	- 3													
10	-12	- 7	- 3	- 2	2	- 5	- 7	3	- 9												
11	8	9	2	5	- 3	1	3	- 4	12	-79											
12	- 2	-28	- 3	- 5	3	-11	-13	4	-13	27	-30										
13	- 6	-10	10	- 3	1	4	- 1	-10	5	21	-19	7									
14	57	20	- 5	- 1	9	33	9	14	-10	-10	6	- 9	- 6								
15	54	18	- 3	- 5	9	28	13	14	- 8	- 9	5	-13	- 5	88							
16	5	7	12	7	3	- 7	- 3	-13	- 1	5	2	- 9	- 6	- 3	1						
17	37	20	13	9	13	10	1	3	- 6	-20	16	-17	1	22	16	-16					
18	6	4	- 7	1	3	13	5	20	- 4	24	-25	11	- 2	6	- 6	- 2	-11				
19	- 0	-39	- 6	- 3	- 3	- 6	-14	- 5	-10	20	-14	67	2	- 1	- 5	14	-17	8			
20	1	15	-15	- 2	- 1	27	1	9	-14	- 1	- 0	- 6	- 4	28	9	-24	- 0	8	-10		
21	- 1	- 7	- 5	12	5	4	- 0	10	1	2	- 4	1	- 2	- 4	- 2	-10	-15	7	2	- 1	
22	-10	-14	- 4	- 1	- 1	- 5	3	6	4	4	- 5	8	2	-10	-11	2	- 5	11	3	2	-16

Correlation Matrix for All Patients, Group B

(Recorded in one-hundredths of a unit)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1																					
2	38																				
3	1	-7																			
4	2	1	3																		
5	6	-10	-4	-13																	
6	19	-4	-6	-0	-2																
7	12	2	-8	-3	1	78															
8	10	7	3	5	7	1	-4														
9	-0	-13	-8	5	5	44	57	-1													
10	-16	-9	-6	3	-1	-3	-6	-9	-9												
11	12	6	5	-3	-1	6	8	9	12	-72											
12	-11	-26	-7	4	1	-11	-9	-6	-6	12	-16										
13	7	-4	-0	2	3	10	7	-12	8	17	-16	1									
14	58	23	-6	-6	10	20	13	17	5	-10	12	-16	7								
15	52	21	-5	-6	6	21	13	20	10	-10	11	-12	6	90							
16	13	25	-2	3	-1	-1	-2	4	10	-6	11	-24	3	7	7						
17	43	14	19	10	-3	19	14	3	9	-12	5	-10	8	22	19	3					
18	4	4	-9	1	-8	2	-3	-7	-2	-5	8	4	11	-0	-3	-26	-9				
19	-26	-26	-5	11	-12	-25	-16	-11	0	21	-21	62	-3	-20	-21	-16	-10	0			
20	-13	-4	-18	3	11	15	18	-8	8	-2	3	4	2	-12	-10	-5	-6	3	-13		
21	4	4	-3	1	11	-3	-1	6	4	13	-13	1	0	5	3	-7	-14	-7	-2	-5	
22	-17	-12	-3	-1	-7	6	9	-11	7	-5	-1	-6	-10	-14	-11	-11	7	-5	4	6	-29

Correlation Matrix for Recidivists Only, Group A

(Recorded in one-hundredths of a unit)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	21
1																	
2	26																
3	- 3	-14															
4	- 1	- 3	12														
5	17	- 5	-18	-18													
6	15	- 3	- 3	- 1	10												
7	1	- 4	6	- 6	15	69											
8	5	3	1	-16	- 5	- 4	- 8										
9	- 0	- 7	4	-15	9	29	44	2									
10	3	3	2	7	10	1	3	- 5	- 2								
11	-11	7	- 8	- 2	-10	- 0	- 3	- 2	4	-81							
12	11	- 5	- 1	- 1	5	- 5	-13	11	-19	22	-29						
13	11	- 7	6	- 6	13	11	7	-15	6	2	- 8	- 0					
14	58	25	- 3	- 4	11	33	5	11	- 6	5	- 9	17	10				
15	49	23	0	- 9	14	22	15	13	0	4	- 5	- 8	5	80			
16	- 3	- 2	11	5	6	-15	- 6	3	- 8	9	- 4	- 0	-17	- 3	5		
21	-10	- 7	- 7	- 3	- 2	- 9	- 4	6	- 5	- 6	- 0	1	- 7	- 5	- 5	4	
22	- 5	-15	- 4	12	6	- 6	- 4	- 5	- 2	6	-10	-14	7	-14	-16	7	-12

APPROVAL SHEET

The dissertation submitted by Paul Fedirka has been read and approved by the following committee:

Dr. Alan S. DeWolfe, Director
Professor of Psychology, Loyola University of Chicago

Dr. Emil J. Posavac
Professor of Psychology, Loyola University of Chicago

Dr. Eugene C. Kennedy
Professor of Psychology, Loyola University of Chicago

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree Doctorate of Philosophy in Psychology.

4/20/81
Date

Alan S. DeWolfe
Director's Signature